

Final Report

Volume I

Evaluation of Capacity Development Activities of CGIAR

AUGUST 2017



Markus Palenberg (Team Leader)
Ganesh Rauniyar
Paul Thangata



Independent
Evaluation
Arrangement

ACKNOWLEDGEMENTS

This report would not have been possible without the continued constructive contributions, feedback and support of many people. Foremost, we wish to thank the 108 individuals who shared their experiences, opinions and advice with us in interviews, and the 1,863 former trainees and researchers who did so through their online survey responses. We have analyzed their feedback carefully and it has added significantly to the evidence base for this evaluation.

We thank John Lynam and Ian Christoplos for their insightful and thought-provoking background papers (volume III of this report), and for many very helpful discussions and email exchanges.

We very warmly thank Manuela Bucciarelli (IEA) who reliably and cheerfully supported the entire evaluation with excellent research and analysis, and Andrea Deisenrieder who expertly managed the sizable online survey.

We also wish to thank Adipala Ekwamu (RUFORUM), Moses Osiru (RUFORUM) and Aggrey Agumya (FARA) for facilitating our participation to the 2016 African Agricultural Science week in Kigali and for proving us with valuable input for this evaluation.

Several Centers and programs opened their doors to us as part of our case studies, and we wish to thank their staff for supporting and facilitating our visits. Especially, we are grateful to Appolinaire Djikeng and Wellington Ekaya (ILRI Beca Hub), Robin Buruchara (PABRA), Wilfredo Carandang and Mahrus Aryadi (SEANAPE) for excellent support. We also wish to thank staff at ICRAF, ICRISAT, ILRI, IRRRI, and IWMI for organizing our respective Center visits. The CGIAR Consortium Office invited us to Montpellier and to a workshop in Munich, and we are grateful to Tonya Schütz for her support in this regard.

Because the evaluation covered 15 CGIAR Centers and an equal number of CRPs, coordination was a key and we are grateful to the Center and CRP focal points helping us to this end: Jorge Andrade (CIP), Suresh Babu (IFPRI), Zoumana Bamba (IITA), Enrico Bonaiuti (DS), Samuel Bruce-Oliver (AfricaRice), Patrick Dugan (WorldFish), Richard Fulss (CIMMYT, WHEAT, MAIZE), Thomas Falk and Satish Nagaraji (ICRISAT, DC, GL), Meredith Giordano (IWMI), Mehmood Hassan (ICRAF, FTA), Nancy Johnson (A4NH), Charles Kleinermann (ICARDA), Nicole Lefore (WLE), Noel Magor (IRRI, GRiSP), Frank Place (PIM), Per Rudebjer (Bioversity International), Simone Staiger-Rivas (CIAT), Sonja Vermeulen (CCAFS), Andrew Wardell (CIFOR), and Dagmar Wittine (RTB). We especially wish to thank Iddo Dror, the coordinator of CGIAR's Capacity Development Community of Practice, who played a central facilitation role in addition to acting as focal point for ILRI and the L&F and Humidtropics CRPs.

We thank Rachel Sauvinet-Bedouin and CGIAR IEA for this interesting assignment and support. It is our hope that the evaluation findings and recommendations will help to further shape and develop CGIAR's important role in strengthening capacities of agricultural research for development systems.

August 2017,

Markus Palenberg (Team Leader), Ganesh Rauniyar, Paul

Thangata



This evaluation has been commissioned by the Independent Evaluation Arrangement (IEA) of CGIAR.

The Independent Evaluation Arrangement (IEA) of CGIAR encourages fair use of this material provided proper citation is made.

Correct citation: CGIAR - IEA (2017), Evaluation of Capacity Development Activities of CGIAR. Rome, Italy: Independent Evaluation Arrangement (IEA) of CGIAR <http://iea.cgiar.org>

TABLE OF CONTENTS

Acknowledgement	ii
Abbreviations	vi
Executive Summary	viii
Recommendations	x
1. Introduction to this evaluation	1
Motivation, purpose and scope	1
Concepts of capacity development	2
Methodology	3
Evaluation questions	4
Information sources and analysis	4
Reference to good practice principles	5
Deviations from the Inception Report	6
2. Strategic planning, management, monitoring and evaluation of capacity development	7
CGIAR System-level	7
System-level goals and strategies for capacity development	7
System-level organization and management	11
System-Level Monitoring and Evaluation of Capacity Development	14
Center and CRP level	16
Goals and strategies for CD in Centers and CRPs	16
Monitoring and Evaluation of CD in Centers and CRPs	20
Organization and management of CD in Centers and CRPs	21
Summary	23
3. Capacity development at individual level	25
Context	26
Short-term individual training	26
Activities and targeting	26
Survey of individuals in short-term training	30
Academic education support	32
Activities and targeting	32
Survey of individuals for academic education support	33
Capacity development through scientific collaboration	36
Survey of scientific collaborators	36
Gender in capacity development	38
Participation of women in agricultural R&D	38
Gender in individual capacity development	39
Summary	41

4. Capacity development at organizational and institutional levels	44
Context	45
Capacity development at organizational level	45
Capacity development at institutional level	47
Innovation platforms	47
Policy advice and decision-making support	49
Establishment, facilitation and support of cooperative regional networks	49
Collaborative programs	52
Development and maintenance of system actors and infrastructure	52
Developing capacity for delivery	54
Summary	55
5. Conclusions and recommendations	57
References	62
Figures	
Figure 1: Capacity-related outputs and outcomes of academic education support (n=928).	35
Boxes	
Box 1: issues raised by donors regarding CD	12
Tables	
Table 1: CD-related outcomes related to SRF cross-cutting issues (CGIAR Consortium, 2015b, p. 23)	9
Table 2: CapDev interventions per flagship in Phase II (RICE)	19
Table 3: Examples of Phase II CRP CD budgets	19
Table 4: Numbers of long- and short-term trainees in CGIAR over three years reported by CRP	27
Table 5: Examples of short-term CD reported by various CRPs	29
Table 6: Trainees in long-term program CGIAR over three years reported by CRP	32
Table 7: Total number and percentage of women participants in short-term training	39
Table 8: Total number and percentage of women participants in long-term training	40
Table 9: Number of innovation platforms established by CRPs over three years	48

ABBREVIATIONS

A4NH	Agriculture for Nutrition and Health
AAS	Aquatic Agricultural Systems
ABCF	Africa Biosciences Challenge Fund
AGRODEP	Africa under the African Growth and Development Policy
AMBIONET	Asian Maize Biotechnology Network
ANAFE	African Network for Agroforestry Education)
ANH	Agriculture, Nutrition, and Health Academy
APAARI	Asia-Pacific Association of Agricultural Research Institutions
AR4D	Agricultural Research for Development
ASTI	Agricultural Science and Technology Indicators
AU NEPAD	African Union's New Partnership for Africa's Development
AWARD	African Women in Agricultural Research and Development
BecA	Biosciences Eastern and Central Africa
CAAS	Chinese Academy of Agriculture Science
CapDev CoP	Capacity Development Community of Practice
CCAFS	Climate Change, Agriculture and Food Security
CD	Capacity Development
CIAT	International Center for Tropical Agriculture
CIFOR	Center for International Forestry Research
CIMMYT	International Maize and Wheat Improvement Center
CIP	International Potato Center
CMAAE	Collaborative Master of Science in Agricultural and Applied Economics
CONPAPA	Consorcio de Productores de Papa de la Región central del Ecuador
CORPOICA	Corporación Colombiana de Investigación Agropecuaria
CRP	CGIAR Research Program
DC	Dryland Cereals
DS	Dryland Systems
FTA	CGIAR Research Program on Forests, Trees and Agroforestry
GCP	Generation Challenge Program
GL	Grain Legumes
GriSP	Global Rice Science Partnership
IAR4D	Integrated Agricultural Research for Development
ICARDA	International Center for Agricultural Research in Dry Areas
ICRAF	World Agroforestry Centre
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IEA	Independent Evaluation Arrangement
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
INIAP	Instituto Nacional de Investigaciones Agropecuarias

IRRI	International Rice Research Institute
ISNAR	International Service for National Agricultural Research
ISPC	Independent Science and Partnership Council
IWMI	International Water Management Institute
L&F	CGIAR Research Program on Livestock and Fish
M&E	Monitoring and Evaluation
MAIZE	CGIAR Research Program on Maize
NARI	National Agricultural Research Institute
NARS	National Agricultural Research System
NRM	Natural Resource Management
PABRA	Pan-Africa Bean Research Alliance
PIM	CGIAR Research Program on Policies, Institutions, and Markets
PoWB	Plan of Work and Budget
RBM	Results-Based Management
R&D	Research and Development
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
RICE	CGIAR Research Program on Rice
RTB	CGIAR Research Program on Roots, Tubers and Bananas
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SEANAFE	Southeast Asian Network for Agroforestry Education
SIDA	Swedish International Development Cooperation Agency
SRF	Strategy and Results Framework
SSA-CP	Sub-Saharan Africa Challenge Program
STRASA	Stress-Tolerant Rice in Africa and South Asia
TAP	Tropical Agricultural Platform
WACCI	West Africa Centre for Crop Improvement
WHEAT	CGIAR Research Program on Wheat
WLE	Water Land and Ecosystems

Executive Summary

Capacity development (CD) is pivotal for CGIAR research and development and is critical for reaching CGIAR's goals and targets. From 2017 onwards the CGIAR Research Programs (CRPs) were to allocate at least 10 percent of their total budgets to CD. The reason for this evaluation was to understand better the contribution that CD has made, and can make in the future, to reaching CGIAR's aims and help CGIAR Centers, CRPs and the CGIAR system to improve relevance, comparative advantage, effectiveness of CD activities and sustainability of results; it was also to provide CGIAR partners and others with essential evaluative information, extract relevant insights, draw conclusions and produce useful recommendations.

- › The evaluation focused on CD activities targeted at individuals, organizations and institutions outside CGIAR and did not evaluate activities aimed at strengthening capacities of CGIAR staff, its Centers and CRPs, or the CGIAR System.
- › Stand-alone provision of information, resources, hardware and financial assistance not associated with other CD activities were excluded from the evaluation.
- › The evaluation focused on the period 2011–2016, covering the first phase of CRPs.
- › The evaluation did not cover aspects of gender and partnerships in detail.

The evaluation took a theory-based approach, describing CD interventions and immediate effects for strengthened capacities at the individual, organizational and institutional levels. A unifying framework guided and informed the analysis across the CD types and modalities and was used to assess relevance, effectiveness and sustainability of activities with respect to strengthened capacities. A broader framework of analysis was used to assess how capacities were strengthened through CGIAR activities, projects and programs and enabled partners to contribute to CGIAR's development goals. CD in CGIAR was assessed for contributing to, influencing and enabling agricultural research and development processes, individuals, entities and institutions outside of their control.

The evaluation used several methods and drew on many sources to address the evaluation questions:

- › How relevant has CGIAR CD been and what has been its comparative advantage?
- › What results has CGIAR CD contributed to (or is likely to contribute to)?
- › How can CGIAR improve its CD operationally and strategically?

Principal sources of information included earlier evaluation documents, reports and databases and the evaluation team conducted a survey of individual CD participants, resulting in 1 863 responses. It conducted 122 interviews with 108 practitioners, experts and stakeholders in and beyond CGIAR using Skype, telephone or face-to-face methods. Additionally, the evaluation team drew from:

- › analysis of CD approaches and good practices;
- › review of the evolution of CD in CGIAR;
- › summary of the CGIAR CD activity portfolio;
- › analysis of data collection (Agricultural Science and Technology Indicators (ASTI)), CRP performance monitoring);
- › review of existing and required capacities in agricultural innovation systems;
- › on-line survey of individual CD participants;
- › follow-up interviews with survey respondents;
- › case studies on organizational and institutional CD.

CGIAR Centers and CRPs have engaged in a range of CD activities, individual CD being the largest area for which CD funding is allocated. CGIAR CD includes brief events, training courses and practical, on-the-job training, support for academic studies and learning through research collaboration, and also activities such as network development. Individual CD has included researchers and policy-makers, primary

producers and community members. Although CD is a cornerstone of CGIAR's research for development strategy, it does not have a comparative advantage in all CD areas. It is a network of scientific research centers and its CD should result in enhanced capacity to support its strategy and mission.

The evaluation team concluded that more strategic leadership and direction is needed to ensure the relevance of CGIAR CD. There is significant investment in downstream training at the farm level, of unknown effectiveness and sustainability, and clear strategic guidance would be helpful for CGIAR's approach to CD in circumstances where the enabling environment at national level is limited or lacking. CD programs that assume the role of national extension agencies, catering to the CD needs of primary producers and rural groups, do not represent CGIAR's comparative advantage.

Through ASTI, CGIAR is a leader in the assessment of science and technology investments and in the provision of information and analysis of the National Agricultural Research System (NARS) capacity needs, but CGIAR does not apply this knowledge and information in a strategic manner to guide its own CD activities. There is also limited effort to adjust CD prioritization and activities to CGIAR's changing financial landscape where core funding has been diminishing rapidly, there are limitations as to how bilateral funding can be used, and innovative ways to finance CD are needed. To avoid a further atomization of CD efforts, CGIAR Centers and CRPs have to work more collectively. **(Recommendations 1, 2 and 3)**

CGIAR research and CD activities are organized into projects that often target many kinds of stakeholders and entities simultaneously for whose needs it is difficult to cater systematically. There was good evidence of the effectiveness of individual CD interventions and programs, but little evidence of cumulative effects to strengthen organizational and institutional capacity in agricultural research and development. CGIAR also enhances capacity through mentoring and learning through research collaboration, collaborative research programs and networking. Such activities are not consistently planned, documented or monitored for their CD effects and there is limited understanding of the extent to which informal CD is effective and produces results.

CGIAR's approach to CD contrasts with principles for effective and sustainable CD that requires planning and implementation of CD as an engaging, recipient-owned process. CGIAR Centers do however engage in effective partnership approaches that include facilitating multi-partner networks, platforms and multilateral programs, but sustainability remains a challenge, especially when key donor support or CGIAR participation ends. Preparation for and management of transitions and exit is usually needed.

Different approaches to understanding how CGIAR contributes to development have emerged over recent decades, ranging from focusing on international public goods and technology transfer models to integrated Agricultural Research for Development (AR4D) and Agricultural Innovation Systems. The choice of paradigm influences individual, organizational and institutional capacities important for effective and sustainable agricultural research and development systems. Substantial investments have been made in setting up innovation platforms by Centers/CRPs for driving innovation at the beneficiary level, but there is sparse information on their relative effectiveness, efficiency and sustainability regarding development of organizational and institutional capacities. **(Recommendations 4 and 5)**

Several Centers have established research support units for CD, and have integrated CD into appraisal and project cycle management, but there is often lack of dedicated support functions for assisting research staff with planning, implementing and following-up on CD interventions.

Two principal challenges exist for ensuring good CD practice in Centers and CRPs. First, funding CD expert positions and CD support units – most CRPs do not have a dedicated CD staff position. Second, CGIAR's matrix structure of CRPs and Centers makes it difficult for Centers engaged in many CRPs (and for CRPs with many participating Centers), to plan and manage CD activities in a systematic way. However, despite this, Centers are in the best position to manage CD, including its quality, integrating CD with project management cycles.

The Capacity Development Community of Practice (CapDev CoP) has made significant contributions to establishing a common understanding, synthesizing good practices, and enabling knowledge exchange and continues to be relevant. However, the CapDev CoP is under-resourced. CGIAR needs to find a modality for significant, dedicated support for CD, both at System and operating level. **(Recommendation 6)**

Data and information for CD have not been documented and archived sufficiently well. What is available is limited, quantitative and not informative of the strategic purpose of CD. Potentially useful information is not easily retrievable and in some cases appears not to have been recorded, and tracing CD activities at Centers and CRPs from planning to implementation is limited. Follow-up is weak and does not allow monitoring of CD results in terms of sustainably strengthened capacities and their effects on research productivity, making it difficult to assess whether targets are relevant and realistic and whether CD objectives are being reached. It is evident that monitoring and evaluation (M&E) systems are frequently not in place for CD activities and the situation is sub-optimal.

There is little value in the current CD-related reporting in CGIAR for any of the purposes associated with results-based management: learning, improved decision-making, and accountability to donors, development partners and beneficiaries. The reporting of aggregate numbers and information in a few categories masks a wide range of activities for different purposes and tells little about relevance, realism or performance. Current input-level requirements for CRPs, in terms of allocating a portion of their budget for CD activities, is ambiguous in the absence of a CD typology and because of overlapping research and CD activities. Qualitative approaches to monitoring and reporting, such as long-term tracer studies targeting particular CD interventions, and outcome case studies, are better suited to report on CD. **(Recommendation 7)**

Recommendations

To strengthen the role that capacity development plays in achieving CGIAR's goals, the Evaluation makes the following seven recommendations that span System and Center levels.

◆ Recommendation 1.

Under the leadership of the System Management Board, CGIAR should develop and commit to a comprehensive CD agenda, in line with the needs and approaches of its research and development partners. The agenda should be based on an analysis of regional and national capacity needs for agricultural research and development. This agenda should:

- a. clarify CGIAR's mandate for CD, differentiating between development of partner capacities and support for technology adoption and use;
- b. guide CGIAR's approach to CD and technology delivery under different scenarios depending on the strength of national research and extension systems required for scaling of outcomes and impact;
- c. develop a typology for CD that would clarify elements of informal or synergistic CD through research collaboration, networking and other activities that are primarily geared towards research and delivery. CIFOR and ICRAF have already initiated a process to develop a CD typology and framework for Capacity Needs Assessment as part of the FTA II POWB-2017. This and similar initiatives could be used as a starting point.

◆ Recommendation 2.

Centers and CRPs should base their medium-term CD plans on clear CD strategies and incorporate CD more consistently into their theories of change. The strategic planning of CD should be based on CD needs assessments done jointly with research and development partners, especially with internal CGIAR partners. This should take into account alternative providers of CD and CGIAR's comparative advantage in different situations, particularly for developing capacities

for research and strengthening sustainable capacity for scaling of results. Furthermore, **Centers and CRPs should assess the relative cost-effectiveness of their CD activities vis-à-vis other CD providers** to better determine in which areas their CD activities add most value.

◆ **Recommendation 3.**

In its CD activities, CGIAR should aim at taking **full advantage of the experience and facilities of the Centers**, particularly with regard to their scientific staff and amenities, and **training of local end users and communities should be de-emphasized** or channelled through more appropriate CD providers to ensure better relevance and focus and greater cost-effectiveness of CGIAR's efforts.

◆ **Recommendation 4.**

Centers and CRPs **should build on successful partnership approaches**, such as the facilitation of collaborative multi-stakeholder networks and multi-donor programs and platforms, to ensure that CD has the required long-term perspective and is relevant to and owned by the stakeholders and entities that strengthen their capacities. Careful preparation, management and transition support is required when CGIAR or key donors end their support to programs. The CGIAR country coordination efforts provide an opportunity for CGIAR Centers and CRPs to work more collaboratively on needs and priority assessments in these countries where CGIAR is particularly active.

◆ **Recommendation 5.**

CGIAR should **systematically review the existing experience on innovation platforms** to establish how effective they are as a means for CGIAR to make CD interventions for enabling large-scale adoption of CGIAR's research products. From experience, CGIAR should assume an optimal role, on the basis of its comparative advantage and that of national/regional organizations and development agencies, in channelling capacity support to innovation platform participants.

◆ **Recommendation 6.**

CGIAR Centers should, in collaboration with CRP management and through facilitation by the CapDev CoP, **integrate adequate CD support into their management systems and approaches for ensuring that their CD activities are planned, implemented and followed-up** in accordance with good CD practices and in alignment with CGIAR's Capacity Development Framework.

◆ **Recommendation 7.**

The System Management Office should revise CD-related reporting requirements and put **emphasis on reporting against strategic and annual planning in a manner that reflects intended purpose, type and modality of CD, specifying stakeholder groups targeted**. Reporting and indicators should better serve management purposes. The challenge will be to define a reasonable and harmonized number of CD indicators that can work also at project level and that can be consolidated and meaningful. In their planning of CD activities Centers and CRPs should also plan for follow-up on the beneficiaries so as to provide information that will enable monitoring of progress and results, and improvement in implementation of CD activities. Alternative approaches to monitoring, such as long-term tracer studies targeting particular CD interventions and outcome case studies, should be explored by Centers and CRPs for management and reporting. Developing a CD typology (Recommendation 1.c) would help harmonize CD data and information collection and documentation across the CGIAR.

1. Introduction to this evaluation

This chapter introduces the evaluation. It describes its purpose, scope, challenges and the methodology and approach chosen.

Motivation, purpose and scope

Capacity development (CD) constitutes a cornerstone of CGIAR's research and development agenda. The forward-looking Strategy and Results Framework 2016-2030 introduces CD as one of four key cross-cutting themes critical for attaining CGIAR's goals and targets¹. The CGIAR Research Programs (CRPs) from 2017 onwards were required to allocate an explicit share of at least 10 percent of the total budget for CD². The last comprehensive and system-wide evaluation of CGIAR CD activities was conducted more than 10 years ago and focused on human capacity³. The need to understand better the important contribution that CD has made – and can make in the future – to reaching CGIAR's goals motivated this evaluation.

The purpose of this evaluation was thus to help CGIAR Centers, CRPs and the CGIAR system to improve the relevance, comparative advantage, effectiveness of CD activities and sustainability of the results. A secondary purpose was to provide CGIAR partners and the wider expert community with essential evaluative information⁴. Because of these purposes, the evaluation was designed to draw lessons from CD activities, mainly following the CGIAR's recent reform, aiming to extract relevant insights, draw conclusions and produce useful recommendations.

1 CGIAR (2015)a: CGIAR Strategy and Results Framework 2016-2030.

2 CGIAR (2015)b: 2017-2022 CGIAR Research Program Portfolio (CRP2) Final Guidance for Full Proposals.

3 CGIAR Science Council (2006): Evaluation and Impact of Training in the CGIAR.

4 IEA (2016): Evaluation of Capacity Development Activities of CGIAR - Inception Report.

The evaluation investigated the strengthening of different types of capacity at the individual, organizational and institutional levels. Because almost all CGIAR activities can be understood to involve CD at some of these levels, it was important to set boundaries to the evaluation coverage:

- › following the Terms of Reference⁵, the evaluation focused on CD activities targeted at individuals, organizations and institutions outside CGIAR. This infers that the evaluation team did not evaluate activities aimed at strengthening capacities of CGIAR staff, its Centers and CRPs, or the CGIAR System;
- › stand-alone provision of information, resources, hardware and financial assistance not associated with other CD activities were excluded;
- › the evaluation focused primarily on CD activities of CGIAR in the period from 2011 to 2016. In this way, it covered the first generation of CRPs. However, when longer-term effects of CD were investigated, for example in case studies, CD activities initiated before that period were also considered to illustrate points;
- › the evaluation did not cover aspects of gender and partnerships in detail because evaluations of these topics were carried out in parallel⁶.

Concepts of capacity development

Current understanding of CD embraces broad definitions that stress its importance on many levels; individual, organizational and the enabling institutional environment (in this report referred to as institutional capacity). The three levels interact: lower level capacities can contribute to higher level capacities, and higher level capacities can enable capacity development at lower levels. CD is understood to aim at providing individuals, organizations and systems with the capacities they require for effectively fulfilling their mandates and responsibilities. This implies assessing needs, and planning and coordinating CD from the perspective of individuals, organizations or institutions.

Individual CD focuses on human capital investment. This level has been the focus of CGIAR activities traditionally, and has been evaluated in the past⁷. CGIAR defines some of its individual CD (short-term programs) as taking place “through interactions that are intentional, structured and purposed for imparting knowledge of skills”. In addition, individual CD in CGIAR includes degree-training and postdoctoral studies where it is often tied to higher agricultural education institutions in developing countries and their capacities. Importantly, individual CD happens also through on-the-job mentoring and learning in scientific collaboration, where CD may not be as formally defined or definable as when it is the main objective of the activity⁸.

Organizational capacity refers to internal policies, arrangements, procedures, frameworks and culture that characterize a high-performing organization delivering according to its mandate, and which enable individual capacities to thrive and goals to be achieved. Capacity related to the enabling institutional environment is the collective ability of a network of entities, together with supporting rules and policies, to bring existing or new products, processes, and forms of organization into social and economic use⁹. The CGIAR Capacity Development Framework defines institutional capacity as the “formal and informal rules that structure and constrain human behavior and interaction”. Institutional capacities comprise policies, arrangements, procedures, frameworks and networks that allow organizations and individuals to operate

5 IEA (2016): Evaluation of Capacity Development Activities of CGIAR – Terms of Reference.

6 For information on the evaluations see: <http://iea.cgiar.org/evaluating/cgiar-gender/> and <http://iea.cgiar.org/evaluating/evaluation-of-cgiar-partnerships>

7 CGIAR Science Council (2006)

8 Ibid. Evaluation reported a CGIAR scientist self-estimate of about 12 percent of time being spent in mentoring as part of scientific collaboration.

9 Tropical Agricultural Platform (2016): Common Framework on Capacity Development for Agricultural Innovation Systems: Conceptual Background, xii, 24.

and deliver on their objectives. CGIAR's focus has been on organizational CD of National Agricultural Research Institutions (NARI), often termed technical assistance, particularly through the International Service for National Agricultural Research (ISNAR, 1980-2004) and subsequently an inventory of capacity through ASTI. According to Lynam¹⁰, fostering institutional change has been lacking in NARIs under low resource conditions and the tendency has been to focus on structural changes¹¹. Since the reform, CGIAR acknowledges organizational/institutional CD in reporting on multi-stakeholder platforms.

CD is a long-term progressive process rather than a one-off intervention. There is a need for pluralistic and harmonized approaches, blending different CD elements at different levels. For CGIAR this leads to coordination and partnership challenges across CRPs and Centers, and among external actors providing CD support. There is a shift from enhancing individual capacity to helping individuals and entities develop capacity, and this means that CGIAR, among other suppliers of CD must ensure the relevance of contributions. This requires attention to both capacity needs assessments and assuring that the subject, level and modality best fit the needs.

CD is understood to encompass many activities in CGIAR. Some experts feel that CD has become so all-encompassing a term as to be of little use from an analytical and practical point of view¹². The challenge for CGIAR is to understand that CD is not uniform across CGIAR. Literature on CD contains a number of definitions, terminology interpretations, approaches and practices, including variance between those who fund CD and those whose CD activities are funded¹³. UNDP remarked that "Confusion around the term [CD] seems to have grown along with its popularity"¹⁴ and the International Development Research Centre (IDRC) finds that "several recent reports have shown [that] terminology for capacity development is often vague and inconsistent, and related concepts are cloudy and ill-defined"¹⁵. Additionally, there is no specific language to refer the many different types of CD clearly and unambiguously. Several CD evaluations call for developing a CD "typology" to allow effective planning, implementation and reporting on CD¹⁶. However, given that CD is often inherent in activities that have different objectives, complete unambiguity in classification and, for example, monitoring, may not be possible.

Methodology

The evaluation was designed to take a theory-based approach. The main framework is a linear theory of change describing CD interventions and their immediate effects up to the point of strengthened capacities on the individual, organizational and institutional level. Its causal steps cover CD activities, the immediate outputs they produce, subsequent changes in behavior and practices, and the resulting strengthened capacities. This provided the team a unifying framework that guided and informed the analysis across the many different CD types and modalities. It was used to assess relevance, effectiveness and sustainability of CGIAR CD activities with respect to strengthened capacities of all types and at all levels covered in this evaluation.

The team also used, to the extent possible, a broader framework of analysis for assessing how capacities

10 Lynam, J. (2016): Assessing the CGIAR's Approach to Capacity Development in AR4D in Sub Saharan Africa. Published in Volume III of this report.

11 Lynam, J. (2016)

12 Potter, C. and Brough, R. (2004): Systemic capacity building: A hierarchy of needs. *Health Policy Plan* 2004; 19 (5): 336-345.

13 Lusthaus, C., Adrien, M.H. and Perstinger, M. (1999): Capacity Development: Definitions, Issues and Implications for Planning, Monitoring and Evaluation. *Universalia Occasional Paper*, No.35, p. 5.

14 UNDP (2009): Capacity Development: A UNDP Primer.

15 Taylor, P. and Ortiz, A. (2008): IDRC Strategic Evaluation of Capacity Development: 'Doing Things Better? How Capacity Development Results Help Bring about Change.

16 For example: Emmens, B. and Green, A. (2014): Equipped for Action: A Review of IWMI / WLE's Capacity Development of External Partners. IWMI.

strengthened through CGIAR activities, projects and programs, cumulatively, enabled partners to contribute to CGIAR's development goals. The evaluation team assessed CD in CGIAR as contributing to, influencing and enabling agricultural research and development processes, individuals, entities and institutions beyond their control. This was important to consider because CD should be seen as a means to an end rather than an end in itself. However, the evaluation team also observed the extent to which CD in reality is taken from an intervention perspective and is driven by pressures for delivering development results. In such cases, CD is therefore employed for achieving the objectives of individual development projects, and is primarily focusing on end-users.

The evaluation used a number of methods and drew on many information sources to address the evaluation questions. It aimed to provide qualitative understanding for drawing formative conclusions and forward-looking recommendations, while also assessing the extent, relevance and effectiveness of CD activities.

Evaluation questions

The evaluation aimed to answer three main evaluation questions:

- › How relevant has CGIAR CD been and what has been its comparative advantage?
- › What results has CGIAR CD contributed to (or is likely to contribute to)?
- › How can CGIAR improve its CD operationally and strategically?

The questions addressed the main evaluation criteria of relevance, effectiveness and sustainability. While the evaluation did not focus on gender and partnerships, it considered lessons that might be learned under this rubric.

Information sources and analysis

Principal sources of information were earlier evaluation documents, reports and databases. Overall, information was drawn from about 200 individual sources and datasets. The evaluation team produced syntheses of CD-relevant information and findings in CRPI and CRPII proposals, the Independent Science and Partnership Council (ISPC) comments to those proposals, CRP evaluations and CRP strategies for all CRPs based on common templates and criteria for comparability. Numerous other documents were reviewed and are directly referenced where used.

The evaluation team conducted a survey of individual CD participants, resulting in 1 863 responses. It conducted 122 interviews with 108 practitioners, experts and stakeholders in and beyond CGIAR. The interviews were done to elicit tacit knowledge and experience and to follow up on survey responses. Interviews were conducted by Skype, telephone or face-to-face.

Apart from general interview feedback and desk review of documents, the evaluation team drew from the following analyses:

- › analysis of CD approaches and good practices;
- › review of the evolution of CD in CGIAR;
- › summary of the CGIAR CD activity portfolio;
- › analysis of data collection (ASTI, CRP performance monitoring);
- › review of existing and required capacities in agricultural innovation systems;
- › on-line survey of individual CD participants;
- › follow-up interviews with survey respondents;
- › case studies on organizational and institutional CD.

Reference to good practice principles

Through literature review and expert input¹⁷, the evaluation team synthesized eight good practice statements that represent principles related to the three main evaluation criteria used (see section *Evaluation questions*). The evaluation team acknowledged that these principles are too generic for assessment of the extent to which CGIAR follows good practices across its CD, but the evaluation team considered them as a reference point nonetheless.

Relevance

- › CD needs to be based on participatory needs assessments and understanding of the organization and institutional context.
- › CD is not an end in itself but must contribute to strategic development goals.

Effectiveness

- › The pedagogic design of CD interventions must be appropriate for the specific developmental context needs.
- › Resolving development challenges requires multiple individuals and entities working together and linking capacities at the individual, organization and institutional level.
- › CD is a voluntary process where ownership, self-esteem, respect and accountability are critical.
- › CD requires learning lessons from implementation and subsequent adjustment.

Sustainability

- › CD is a long-term process that requires continued engagement and support across different interventions and modalities.
- › Key change agents on both sides of the knowledge exchange, and their linkages and networks require support.

Limitations to the evaluation

Already at the outset of the inception phase, the evaluation was aware of the paucity of reliable data on CD activities. This is partly explained by the fact that some forms of CD, particularly informal learning and organizational and institutional CD, are part of other research activities and, due to lack of clear definition, have not been recorded. However, there was also absence of consistent and reliable records of formal CD programs and projects, which could not be compensated for through direct inquiry. The scarcity of information was particularly pronounced concerning “downstream” training at field level, where CGIAR activities had expanded significantly. Information on results from CD in terms of outcomes or sustainability of capacities that CGIAR had contributed to was also limited. It should be noted that the evaluation took place during a period of constant changes which made it difficult for CRPs and Centers to plan and report on CD related activities in a consistent and coherent manner. The evaluation team addressed this challenge by using reported records over three years and exploiting qualitative information to the extent possible, and by selecting evaluation tools in a way that balanced reach with in-depth qualitative understanding. Even so, coverage of CGIAR CD activities and the changes they contributed remained limited in this evaluation.

Evaluation of results in terms of contribution of enhanced CD to strengthen research productivity, let alone to development outcomes, was not possible. There was also little information available to assess the extent to which individual CD positively affected organizational CD. Attribution of research of

17 Expert input included two IEA-commissioned Think Pieces provided in Volume III: Lynam, J. (2016): Assessing the CGIAR's Approach to Capacity Development in AR4D in Sub-Saharan Africa; Christoplos, I. (2016): Capacity Development and Relations Between the CGIAR and Agricultural Extension.

development outcomes to CGIAR CD would be challenging in any case, but it would have been possible only through meta-analysis of existing impact studies. In their absence, it was outside the evaluation team's remit to conduct in-depth studies on CD impacts, which, in any case, are methodologically challenging because CD represents but one, often minor, contributing factor in development results.

Another issue that was not feasible to assess in the framework of this evaluation was the cost-effectiveness of CGIAR CD activities. To be meaningful, such an analysis cannot be general and has to be done on specific type of CD activities at the Center or CRP level, looking for adequate comparators. There is a large diversity of CD activities and the benchmarks differ. The CGIAR matrix structure of CRPs and Centers represented a challenge for the evaluation. While central programming at the CGIAR System-level is based on CRPs and their programmatic structures, Centers are independent organizations that plan and conduct most CD. This represented an obstacle in collecting data and information, which at CGIAR level is only available for CRPs, and in linking CD activities and results to Centers and CRPs.

Finally, the evaluation instruments used have their own strengths and weaknesses. Cases studies, for example, provided the evaluation team with in-depth understanding but lacked representative coverage. In contrast, online surveys provided quantifiable results, but offered little qualitative understanding. Furthermore, their representativeness – other than that field level participants, farmers and other primary producers and community members could not be reached – could not be fully determined because the Centers determined what contact information to provide. The potential target pool for surveys (i.e. all people having participated in CD activities during the evaluation period) was not known to the evaluation team and the response rate was only 19 percent across all surveys. Most answers reflected a very high level of satisfaction and approval, which may result from the survey reaching only those who had stayed in the relevant field, and were thus reachable, and by attracting most responses from persons who were satisfied.

Deviations from the Inception Report

The Inception Report described a nuanced theory-based analysis of CD along CGIAR's main impact pathways, which was initially in the evaluation design. The intention was to assess the extent to which capacities once strengthened (the first analytical framework) influence or contribute to changes in the organizations and institutions and support agricultural research and development outcomes along CGIAR's main impact pathways, namely genetic improvement; improved agricultural practices and policy advice. The evaluation was unable to analyse the results of the CGIAR CD activities along these strictly defined lines as supporting evidence was lacking. A lot of CD covers a combination of knowledge and skills, organizational capacities and institutional factors that cut across and integrate those pathways. Furthermore, because CD is only part of CGIAR's (variable) contribution to outcomes it was not feasible to determine role and causality of CD among many factors, the evaluation refrained from pursuing this analysis.



2. Strategic planning, management, monitoring and evaluation of capacity development

© NEIL PALMER PHOTOGRAPHY/CIAT

This chapter describes and analyses how CD activities and results are conceptualized, planned, organized, implemented, measured and reported in CGIAR. The first section reviews the topics at the CGIAR System-level, and the second section at the level of Centers and CRPs.

The evaluation team drew its findings for its system-level analysis from a review of key documents, including CGIAR reform documents, Strategy and Results Framework (SRF; 2011 and 2015), documents of the CapDev CoP, and CGIAR Portfolio Reports. The evaluation team also reviewed minutes of the Consortium Board and the Fund Council meetings. The Center/CRP level analysis was based on reviewing strategic planning for CD by Centers and CRPs, CRP PoWBs (Plan of Work and Budget) and Annual Reports. In addition, the evaluation team used information from field visits and interviews with CGIAR staff and external experts.

CGIAR System-level

System-level goals and strategies for capacity development

The importance of CD for reaching CGIAR's overall goals has been frequently stressed at the CGIAR System-level. In 2006, a system-wide evaluation of training in CGIAR recommended that "Training should be fully recognized as an indispensable component of the CGIAR's activities, not only as a contribution to NARS institutional strengthening, but also as a contribution to the execution and refinement of the Centers' research"¹⁸.

18 CGIAR Science Council (2006), page 4.

The 2008 independent review of the CGIAR System, which contributed to CGIAR reform design, considered CD to be an essential component of enhancing CGIAR's impact orientation and the effectiveness of its partnerships. Specifically, it recommended "the CGIAR donor community and the governments of developing countries approach the needs of Africa systemically by assuring adequate provision for institution and capacity building in the partnership among CGIAR, NARS, and advanced research institutes"¹⁹. The foundational reform document, "Voices of Change", reaffirmed CGIAR's commitment to CD and stated, as one of the principles, that the Consortium and Centers will "strengthen the capacity of NARS and other research partners in developing countries"²⁰.

The first SRF (2011) described CD as a critical cross-cutting activity to be supported through the Consortium Office. Its analysis highlighted under-investment and increasing differentiation among countries in terms of research capacity, which would have negative implications in some countries' capacity to be effective partners for international research²¹. The SRF defined seven strategies to build on CGIAR's core assets. One of the strategies was "to play a catalytic role in capacity building in the area of AR4D". The SRF did not determine any CD priorities. However, implicitly, it defined CGIAR's comparative advantage to be strengthening research capacity of national partners for achieving impact. CGIAR was to "expand from imparting research skills to include more learning-by-doing, testing of new methodologies and participatory approaches, often building on a base of new knowledge". The SRF considered it necessary to develop innovative and differentiated approaches to CD, depending on implementation needs of the CRPs.

Comparative advantage is a dynamic concept and evolves as demand on CD is changing, new providers are emerging and CGIAR is strengthening its expert capacity on new topics. Good example of the latter include research on gender in agriculture and climate change for which CGIAR has a dedicated research program since relatively recently (compared to some of CGIAR's traditional core expertise).

The SRF 2015, covering the period 2011-2030, highlights CD as one of four cross-cutting issues. The Fund Council members placed emphasis in their discussions on the importance of CD and setting objectives for CD at outcome level. As in SRF 2011, CD was seen as being necessary for CGIAR's impact, "a strategic enabler of impact", cutting across individual, organizational and institutional levels. Efforts were to focus on mainstreaming new capacities in partner organizations and embedding activities in ongoing research programs. The SRF acknowledges the importance of CD in all areas of agricultural and food research. It highlights, as "pressing", the need to develop capacity in "new areas, namely data management and communication technologies, landscape analysis and climate-smart agriculture."

The SRF formulated CD outcomes for all the cross-cutting issues (Table 1). Two of the outcomes addressed individual capacity (among partner organizations and among women and youth) – one was on organizational capacity in terms of increasing investment, and several on the enabling environment.

Given that the SRF 2016-2030 is very recent, this evaluation could not assess whether it influenced CD in CRPs, beyond being reflected in the second phase CRP proposals (see section 2.2.1). However, to the extent possible, given the generic nature of the two SRFs, the evaluation team used other documents to determine whether CD in CRPs had been relevant and reflected CGIAR's comparative advantage.

While the SRF emphasizes the importance of CD for CGIAR's impact and need to integrate CD into research programs and partnerships when needed, it also calls for CGIAR to develop capacity in countries where national research systems have been severely under-resourced (including post-conflict countries).

19 CGIAR (2008): Bringing together the best of science and the best of development: Independent Review of the CGIAR System Technical Report, page 16

20 CGIAR (2009): Voices of Change The new CGIAR, page 13

21 GIAR (2011): A Strategy and Results Framework for the CGIAR.

However, the SRF is unclear on the extent to which CGIAR should systematically strengthen capacities of agricultural research systems in developing countries, i.e. assume the role that ISNAR had.

Table 1: CD-related outcomes related to SRF cross-cutting issues (CGIAR Consortium, 2015b, p. 23)

	Climate Change	Gender and Youth	Policies and Institutions	Capacity Development
Intermediary Development Outcome (IDO)	Mitigation and adaptation achieved	Equity and inclusion achieved	Enabling environment improved	National partners and beneficiaries enabled
Sub-Intermediary Development Outcome (Sub-IDO)	Reduced net greenhouse gas emissions from agriculture, forests and other forms of land-use	Gender-equitable control of productive assets and resources	Increase capacity of beneficiaries to adopt research outputs	Enhanced institutional capacity of partner research organizations
	Increased above- and below-ground biomass for carbon sequestration	Technologies that reduce women's labor and energy expenditure developed and disseminated	Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research	Enhanced individual capacity in partner research organizations through training and exchange
	Improved forecasting of impacts of climate change and targeted technology development	Improved capacity of women and young people to participate in decision making	Conducive agricultural policy environment	Increased capacity for innovations in partner research organizations
	Enhanced capacity to deal with climactic risks and extremes		Conducive environment for managing shocks and vulnerability, as evidenced in rapid response mechanisms	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities
	Enabled environment for climate resilience			

Color coding: dark green = capacity outcome; light green = enabling environment outcome.

Source: CGIAR (2015): CGIAR Strategy and Results Framework 2016–2030.

As mentioned above, another area lacking clear guidance in the SRF is downstream training, where CGIAR's comparative advantage has been questioned in the past. The SRF emphasizes the importance "to enhance innovation throughout the agri-food system including farmers and other groups along the value chain". The evaluation team does not interpret this to mean that CGIAR should move towards training farmers rather than staff in partner organizations. It interpreted the purpose of the SRF as being engagement of farmers, among other actors, in innovation systems and value chains, thereby developing organizational capacity. However, as discussed in Chapter 3, farmer training accounts for the very large increase in numbers of individuals trained, compared with the situation in early 2000, documented in the Science Council study on training²².

22 CGIAR Science Council, (2006.)

Through interviews, the evaluation team recognized uncertainty about what CGIAR’s role should be at the field level in training end-users. Therefore, clear direction regarding this question would be of great importance for CGIAR Centers and CRPs when prioritizing their CD activities and communicating their strategies to partners and beneficiaries.

The SRF 2016-2030 presents a high-level results framework for CD, but not a theory of change, although in the SRF it is mentioned that such a theory of change is to be developed later. The evaluation team considered that a theory of change for CD needs to be fully integrated into a programmatic theory of change at all levels because capacities influence and enable research, development processes and development outcomes. At System-level, such theories of change would necessarily remain very generic.

The CapDev CoP was established in 2013²³ and has played a central role in developing system-level guidance on CD (see section 2.1.2 below). In parallel with the development of the SRF 2016-2030, the CapDev CoP published a Capacity Development Framework²⁴ (referred to in the SRF). According to interview feedback, the framework was widely accepted by CGIAR staff and aimed to guide Phase II CRP design²⁵. The framework consists of the following nine CD-related elements:

- > capacity needs assessment and intervention strategy design;
- > design and delivery of innovative learning materials and approaches;
- > develop CRPs and Centers; partnering capacities;
- > developing future research leaders through fellowships;
- > gender-sensitive approaches throughout capacity development;
- > institutional strengthening;
- > monitoring and evaluation (M&E) capacity development;
- > organizational development;
- > research on capacity development.

In addition, the framework highlighted the importance of capacity to advance innovation “among the systems of actors that develop, interact and use the results of CGIAR research”.

The evaluation team considered that in the framework document the different aspects of CD from a CGIAR perspective were usefully explained, ranging from research on CD and needs assessments to M&E of CD activities and results, and covering all three capacity levels. The framework itself does not provide guidance for constructing CGIAR CD objectives and a theory of change, or prioritizing CD. The elements are logical but generic. They are of three kinds; they cover steps and activities for preparing or assessing CD (research, needs assessments, learning materials and approaches, M&E); different capacity types and levels (partnering capacities, future research leaders, institutional and organizational development); and important cross-cutting features for CD (gender sensitive approaches, capacity to innovate). The elements are described in very broad terms, and the framework does not describe the linkages between the elements. Several elements overlap, and the element on partnering overlaps with and states what CGIAR guidance on partnerships already comprises without adding clarity about the CD dimension of partnerships. Due to its general approach, the framework does not provide practical guidance for good practice in implementing CD in programs.

In addition, the framework advocates embedding CD in the CRPs’ theories of change as necessary for making CD effective as a vehicle for sustainable development, with which the evaluation agrees. While the document alludes to a “discussion of how [theories of change and impact pathways] can be considered as part of the overall capacity development process”²⁶, it does not provide such guidance.

23 CGIAR (2013): Consortium Request for a CGIAR Fund Commitment to System-Wide Capacity Strengthening Activities, p. 4.

24 CGIAR (2015)c: Capacity Development Framework. Prepared by CGIAR Capacity Development Community of Practice for the second round of CGIAR Research Programs.

25 CGIAR (2015)b, p. 23.

26 CGIAR (2015)c, p. 3.

System-level organization and management

In this section the evaluation team presents its findings and conclusions on the guidance and direction that the System governing bodies, the Fund Council and the Consortium Board, have provided on CD to the CRPs, and consequently to the Centers. It also assessed management support to CD at Center and CRP level. The assessment of oversight and management reflects the system structure that was in place until the end of 2016.

Fund Council and Consortium Board

The Fund Council had a major role in developing the SRFs that presented the System's strategy, including that for CD, albeit at a general level (as discussed above). Regarding strategy development, CRP selection and other System-level processes that were relevant to CD, the Fund Council interacted with the Consortium, which prepared the proposals for the Fund Council's consideration. In approving the CRPs, the Fund Council also endorsed strategies and plans for CD, for which it received advice from the ISPC. Few remarks were made about CD in the appraisal commentaries prepared by the ISPC during the first round. In only one case, that of Humidtropics, did a CD matter become a condition for approval; the CRP was requested to place emphasis on capacities in "new approaches to knowledge sharing, scaling up and fostering small enterprise" and post-harvest, in addition to CD on production research. However, the Fund Council meeting minutes record that in discussing the proposals, the Fund Council frequently commented on CD. In the second CRP cycle selection, when all CRP proposals were assessed and discussed simultaneously, the ISPC, in its appraisal, followed, to a large extent, the CapDev framework. A system-wide initiative like the CapDev CoP can assist in developing a more coherent and streamlined approach to CD at the System-level.

In its early meetings, the Fund Council emphasized the integral nature of partnerships and CD in the program proposals. It stressed the importance of engaging stakeholders in program planning so that partnerships, including CD, would be clearly designed and activities planned would be concrete and their funding transparent. Fund Council members frequently highlighted the importance of CD of NARS and the role of regional organizations in CD.

At an early stage there was also discussion on mainstreaming CD in CRPs, for which a system-wide approach was considered by the Consortium for some activities, such as postdoctoral and visiting fellow programs, in order to generate efficiencies as "quick-wins"²⁷. The Fund Council was, however, sceptical about what it considered "parallel incentives structures", as a cross-cutting CD theme would have been. The proposal in 2013 from the Consortium to the Fund Council for allocating funding for System-wide capacity strengthening²⁸ was subsequently rejected. The Fund Council felt that a full strategic plan was needed rather than a set of *ad hoc* activities.

The proposal was developed through a Working Group of Center and CRP CD specialists and engagement with external experts and stakeholders. It included setting aside USD 3.5 million from the CGIAR funding windows 1 or 2 in the 2013 financial plan for System-wide CD activities, with coordination and leadership residing at the Consortium Office. Given that this proposal, intended to be strategic, was a major point of debate between the Consortium and the Fund Council on CD, the evaluation assessed the justification and arguments against the proposal in some detail.

The proposal was to constitute both a CD strategy for the System and a plan for mainstreaming some activities as cross-CRP for the sake of effectiveness. These activities included expanding CGIAR

27 Such a postdoctoral program for the Mega-programs (later termed CRPs) had been recommended in 2009 in the Social Science Stripe Review by the Science Council (recommendation 3a "Introduce a CGIAR Young Scientists Program")

28 CGIAR (2013)

engagement with successful CD activities, such as the ILRI Biosciences Eastern and Central Africa (BecA)-hub, Africa-Brazil Innovation Marketplace and the African Women in Agricultural Research and Development (AWARD) program.²⁹ The donors raised the following issues, which in the proposal were lacking or inadequately addressed, but that were important regarding strategic and operational issues of CD in CGIAR.

Box 1: Issues raised by donors regarding CD

- ▶ Need for a method for assessing CD or the impact of additional capacity created.
- ▶ Regional organizations can be involved in very practical ways in both the design and implementation of capacity building endeavors, facilitating visibility and progress in partnerships with NARS.
- ▶ CGIAR's comparative advantages relative to other entities involved in capacity strengthening need to be clearly analysed.
- ▶ For being strategic, the proposal needed to take a long-term perspective and address key issues, such as the strengthening of institutions, rather than limiting focus to human capacity strengthening.
- ▶ Clear targets need to be defined for the investment if the proposal is to tap into existing resources of other programs and initiatives on capacity strengthening.

Source: Fund Council meeting minutes of 9th Fund Council meeting, April 2013.

During that discussion members pointed out that capacity building does occur in an *ad hoc* manner among Centers and national institutes, and emphasized the importance of needs assessment. Given that there was also support to mainstreaming as proposed, the Fund Council requested the Consortium to prepare a strategic action plan for CD, including elaboration on specific ways to measure outcomes.

Apart from the Consortium Board's role in preparing material for the Fund Council's deliberation, discussed above, the Board did not address other substantive issues on CD. With the strategic proposal for system-wide activities having been rejected, the Board reported to the Fund Council that it had initiated a review of existing capacity strengthening activities to develop a strategic action plan. In its reporting to the Fund Council's 9th meeting in 2013, the Board suggested the areas where mainstreaming of CRP-based CD was to be focused; namely institutional capacity, partnerships and innovation systems. The dialogue with the Fund Council did not continue. The evaluation also noted that the action plan for CD has not yet been developed.

The Consortium Office played two main roles on behalf of the Consortium Board: i) a facilitation and support role for developing system-level CD guidance, and ii) as part of its CRP portfolio management, a supervisory role for planning and implementation of CD in CRPs. It also convened the CapDev CoP (see below).

Based on its review of dialogue and decisions by the System governing bodies, the evaluation team concludes that, despite very relevant issues on CD having been raised, the Fund Council and the Consortium Board have provided too little strategic leadership on CGIAR CD. These bodies should have devoted more attention and expertise to CD as being resource-intensive and central to CGIAR's success, in particular regarding carry through of the thinking and initiatives presented for decisions to be made and actions to be taken. The team considers it the responsibility of CGIAR system-level governance to provide leadership and ensure the necessary resources and support for developing CGIAR's CD agenda, i.e. for clarifying its role, developing a comprehensive strategy, and for setting realistic priorities for CGIAR's contributions to CD of AR4D systems in developing countries.

29 AWARD was initially a CGIAR program hosted by ICRAF but following the CGIAR reform became independent.

Given that CD is primarily a Center responsibility, the evaluation team would have expected to find some evidence of consultation between the System governance bodies and Center governance and management. The team considers that lack of comprehensive consultation is a reason for concern, particularly because Centers, as legally independent organizations, have a strong accountability ties with donors that provide bilateral funding, currently about 80 percent of all CGIAR funding. It is therefore very important to understand, at the System-level, what position each Center's governance and management has on this component and consequently what strategic orientation it has.

Capacity Development Community of Practice

The CapDev CoP played a central role in development of system-level guidance material on CD, and for knowledge exchange and coordination among Centers and CRPs. The CoP was originally envisaged as an "Agricultural Research Capacity Strengthening Network" of CGIAR and partner CD specialists³⁰. Establishment of the CoP was clearly not a direct outcome of the 2006 training study, but that study suggested a system-level initiative for at least some shared CD services to ensure "that every Center has access to some form of training and learning function and expertise"³¹. This idea was taken up in the 2011-2015 SRF – a "dedicated informal network to promote Capacity Strengthening may work at the System-level to link CRPs, Centers and partners in these areas"^{32 33}.

As most staff in leadership and coordinating positions related to CD in Centers and CRPs are CoP members, the group represents the most important network of CD-related expertise in CGIAR, connecting and exchanging information between CD-units in Centers and CRPs. Facilitated by the Consortium Office, the CoP also serves as a vehicle to communicate system-level policy to Centers and CRPs, and for fostering participation and ownership.

The CoP developed several system-level guidance documents for CD. In 2013, prior to its formal establishment, several core members collaborated as a working group and authored a discussion paper assessing the evolution and current state of CD in CGIAR and deliberated on steps and challenges lying ahead.³⁴ The CoP later effectively influenced CD content in the SRF 2016-2030³⁵, developed and established buy-in for the CGIAR CD Framework³⁶, developed sample CD results indicators for CD³⁷, and continued to be involved in subsequent indicator development. It also informed Consortium guidance for CRPII proposals³⁸. For example, most CRPII CD strategies were structured around the CoP framework elements, which, as mentioned above, the ISPC also used in its appraisal of the pre-proposals. The CoP's indicator-related work was still in progress during the evaluation, and actual influence on strategy and reporting was not yet evident.

The evaluation team observed however that CoP members had difficulties in allocating time and resources to working on system-level CD guidance, and attendance at system-level meetings was poor. The CoP has consequently had insufficient capacity to conduct comprehensive assessments, its work to date appearing to be largely driven by the initiative of a small group of dedicated individuals who work beyond their day jobs. Thus, the CoP remains significantly under-resourced. The evaluation

30 CGIAR (2013), p. 4.

31 CGIAR Science Council (2006), p. 6-7.

32 CGIAR (2011) p. 68.

33 Centers initially favored a more formal setup - a "special unit [...] that should also benefit from secured staffing and funding." See: Mehta-Bhatt and Beniast, "Report of the Project on: Collective Action in CGIAR Capacity Development.

34 Staiger, S. et al (2013): Lessons Learned and Ways Forward on CGIAR Capacity Development: A Discussion Paper.

35 CGIAR (2015)b.

36 CGIAR (2015)c.

37 CGIAR (2015)d: Capacity Development Indicators for the Second Phase of CGIAR Research Programs.

38 CGIAR (2015)b.

team considers that the CoP should have a clearer mandate to act at the System-level. This is required for development of a comprehensive CGIAR CD agenda through analysis and guidance so that cost-efficiencies and synergies can best be realized.

System-Level Monitoring and Evaluation of Capacity Development Reporting

At the CGIAR System-level, the evaluation found monitoring of CD activities and CGIAR's performance in CD to be very limited. CRPs were requested to report annually on CD in narratives and against indicators as indicated in reporting templates.³⁹ The narrative reporting varied among CRPs and years, often duplicating numbers reported for the indicators and thus adding little information on activities and progress. In addition to providing specific information on CD according to the annual report template, CRPs also referred to CD in their progress and outcome reporting, but variably. Such reporting was more helpful for understanding how activities and progress related to CRP strategies and PoWB.

Five output-level CD indicators (counting male and female figures separately) were tracked systematically, four of them on individual CD and one on institutional CD. CD related to gender was reported in a section on gender. The indicators were:

- › the number of male and female trainees in *short-term* programs facilitated by CRPs (2 indicators, separately tracked as male and female trainees)⁴⁰;
- › the number of male and female trainees in *long-term* programs facilitated by CRPs (2 indicators)⁴¹;
- › number of multi-stakeholder R4D innovation platforms established for the targeted agro-ecosystems by the CRPs (1 indicator)⁴².

The evaluation found the information value of the indicator figures to be limited, even for record-keeping purposes. It considered only the long-term training reporting reasonably reliable. The numbers, as instructed in the guidance glossary, were based on clearly defined categories of trainees, such as academic trainees, for which Centers have traditionally kept records as part of their administrative routines.

Records for short-term individual training mixed together very different kinds of activity, which is apparent from the explanations some CRPs reported, and is illustrated by the very large variation in numbers reported among CRPs and years (see Table 4 in section 3.2.1). Some CRPs included only attendees from

39 CGIAR (2014) "Templates for Annual Reporting for the Years 2014 and 2015 from the Consortium to the Fund Council Concerning the CRPs. February 2013, updated November 2014 p. 8–9.

40 Guidance glossary: "The number of individuals to whom significant knowledge or skills have been imparted through interactions that are intentional, structured, and purposed for imparting knowledge or skills should be counted. This includes farmers, ranchers, fishers, and other primary sector producers who receive training in a variety of best practices in productivity, postharvest management, linking to markets, etc. It also includes rural entrepreneurs, processors, managers, and traders receiving training in application of new technologies, business management, linking to markets, etc., and training to extension specialists, researchers, policymakers, and others who are engaged in the food, feed, and fiber system and natural resources and water management. Include training on climate risk analysis, adaptation, mitigation, and vulnerability assessments, as it relates to agriculture. Training should include food security, water resource management/IWRM, sustainable agriculture, and climate change resilience. Indicate, from the above list, the general subject matters in which training was provided."

41 Guidance glossary: "The number of people who are currently enrolled in or graduated in the current fiscal year from a bachelor's, master's, or Ph.D. program or are currently participating in or have completed in the current fiscal year a long-term (degree-seeking) advanced training program such as a fellowship program or a postdoctoral studies program. A person completing one long-term training program in the fiscal year and currently participating in another long-term training program should be counted only once. Specify in this cell the number of master's students and number of PhDs."

42 Guidance glossary: "To be counted, a multi-stakeholder platform has to have a clear purpose, generally to manage some type of tradeoff/conflict among the different interests of different stakeholders in the targeted agroecosystems, and inclusive and clear governance mechanisms, leading to decisions to manage the variety of perspectives of stakeholders in a manner satisfactory to the whole platform. Indicate the focus of each platform in this cell, including geographic focus."

formal training courses, while others also included short and informal interactions with end users. The indicator definition specifies only individuals “to whom significant knowledge or skills have been imparted”, but the evaluation team found that interpretations varied as to what it meant in practice. Importantly, the very large numbers reflect reporting of primary sector producers, possibly farming families that in single events may account for very large groups, lumped together with reporting for employed professionals, such as scientific staff of NARIs. The numbers thus became inflated and the significance of the training efforts could therefore not be assessed.

Moreover, regarding the indicator for multi-stakeholder platforms, the evaluation team found that interpretations differed, with some CRPs listing only formally organized, longer-term platforms and others including also one-off multi-stakeholder workshops. From interactions with CD focal points in Centers and CRPs, and the Consortium Office, the evaluation team concluded that there has been little follow-up and verification or quality assurance for reported figures. Several interviewees in Centers mentioned that participant lists were kept by lead researchers but were not available centrally.

At least some CRPs have questioned the indicator reporting. For example, PIM (Policies, Institutions, and Markets) in its 2013 annual report made comments that seem still to be current: “The CGIAR system does not yet have a strong set of reporting indicators that constructively supports a focus on impact and accountability. The indicators of Annex 1 are particularly weak on policy issues and capacity building. [...] With regards to capacity building, the emphasis on counting “people sitting in chairs” misses other important dimensions of capacity building.”

The CGIAR portfolio reports have not reported specifically on CD, but, on occasion, have provided some CRP-specific examples. Portfolio Report 2012 reported on large numbers of people trained, considering the volume impressive. CRP efforts to enhance farmers’ capacity were frequently reported with little clarity about who actually did the training – CGIAR or partners. There was little detail on developing sustainable capacity of partners or how CD related to CRPs’ research agenda and objectives. A rare example in Portfolio Report 2013 was details of RTB (Roots, Tubers and Bananas) CD successfully leading to capacity in national organizations to report on and contain a banana pest.

In 2015, the CapDev CoP drafted a CD results framework for each of the 10 framework elements, proposing indicators for CRP outputs and outcomes, and at a higher, portfolio level⁴³. The indicators are a mix of counts, proportions, and composite type indicators. While the SRF does not define measurable targets for CD, the guidance for CRP II proposal development implied that such targets should be set and that they could be chosen from this CD results framework. The evaluation team considered that the CD results framework contains useful implicit thinking about how CD activities are linked to results. However, in the evaluation team’s view, the 10 CD framework elements do not serve either as a basis for a system-level theory of change for CD, or a sufficient basis for designing performance reporting.

There have also been attempts at input-based management of CD in CRPs. For example, Phase II CRPs are required to allocate a minimum of 10 percent of their budget to CD. It is, however, unclear how this share is to be determined, given the breadth and diversity of activities aimed at strengthening capacities. It is not useful to draw the line between CD and other activities with CD aims, which the CapDev Framework also defines very broadly. Because of the cross-cutting and broad nature of CD, associated budget figures remain meaningless unless there is clarity on what is to be included.

Continued efforts to develop indicators for CD results, and requirement in CRPII guidance of proposal

43 CGIAR (2015)

development to present indicators for CD to track progress⁴⁴, suggest an intention to manage CD in CRPs on the basis of results. Also the CapDev indicator proposal suggested using the results framework for results-based management.

The gap is large between the current five annual report indicators focused on aggregated counts and comprehensively reporting on results from CD, in terms of sustainable and effective capacity strengthened at all levels. On the other hand, the evaluation team is doubtful that a standard results-based approach to managing CGIAR CD, which uses indicators for measuring results, is feasible or can improve accountability, decision-making, and learning. Challenges with RBM (Results-Based Management) related to CD have been well documented and relate to attribution, time-delay, commensurability, capacity for monitoring, and quality assurance⁴⁵. Because AR4D CD activities are even more indirect and further removed from development outcomes, these challenges are exacerbated. The broad range of different types of CD, especially at the organization and institutional levels, and lack of clear demarcation of what falls under CD and is a direct responsibility of CGIAR, pose additional challenges in implementing an indicator-based RBM system.

The System-level practice of reporting does not amount to a well-functioning monitoring system that would be useful for documenting progress and learning. The evaluation team considers that performance management in CD should involve non-traditional qualitative monitoring techniques, systematic tracking of past activities and rigorously documented outcome narratives. Furthermore, monitoring of CD should be linked to CRP and Center strategies. For specific types of CD, such as academic degree training and mentoring, monitoring of publications resulting from the CD could help assess the effectiveness of CD gained. For example, collaborator co-authored publications could be tracked as an indication for enhancement of research skills and sustainability of collaboration. PhD studies can be expected to lead to scientific publications in collaboration with the CGIAR mentors, and those could be systematically monitored.

CD has been evaluated twice before this evaluation at system-level⁴⁶. Those evaluations focused on training of individuals (through courses, degree training and informal mentoring) and covered the periods of 1962-1985 and 1993-2004. Evaluation at Center and CRP level is addressed in the subsequent section.

Center and CRP level

Goals and strategies for CD in Centers and CRPs

The evaluation assessed strategic planning of CD by looking at CD strategies that were available both for Centers and CRPs, and other planning and reporting documents that applied only to CRPs. Comparing planning documents (PoWB) and annual reporting, with the CRPs' strategic planning on CD, allowed the evaluation team to track, in some cases, the extent to which CD in CRPs has been strategic and aligned with program objectives.

-
- 44 The Guidance note for CRP 2 full-proposal development actually refers to existing indicators: “a set of robust indicators have been developed to help CRPs in the planning, monitoring and evaluation of CapDev interventions, and linking the sub-IDOs and the CapDev Framework, so as to provide CRPs with additional ways of mapping their planned CapDev activities, to track progress, assess efficiency and effectiveness of CapDev actions, and capture lessons learned for continuous improvement”.
- 45 DAC Working Party on Aid Evaluation (2010): Results Based Management in the Development Cooperation Agencies: A Review of Experience; Mayne, J. (2007): Best Practices in Results-Based Management: A Review of Experience A Report for the United Nations Secretariat; UNDP (2009): Handbook on Planning, Monitoring and Evaluating for Development Results; Vähämäki, J. (2016): Matrixing Aid: The Rise and Fall of ‘Results Initiatives’ in Swedish Development *Aid*; Vähämäki, J., Schmidt, M. and Molander, J. (2011): Review: Results Based Management in Development Cooperation.
- 46 World Bank (1986): Training in the CGIAR system: building human resources for research to improve food production in developing countries; CGIAR Science Council (2006).

While CRPs have been requested to develop CD plans, and in CRPII proposals a CD strategy, many Centers have chosen to include CD in their strategic planning. However, given that nearly all CD activities have been implemented by Centers and covered by bilateral funding, examination of Center strategies also provided a way to assess strategic planning of CD in current programs.

The evaluation team found substantial variation in CD strategies regarding content and detail across the 15 CGIAR Centers. ICARDA, ICRAF and IFPRI have produced comprehensive CD strategy documents that present credible frameworks and theories of change. CIAT, CIFOR, CIMMYT and ILRI include CD in their strategy documents as a central strategic objective or an important intermediary objective to achieve development goals. The corporate strategies of AfricaRice, CIP, ICRISAT, IITA and IWMI make reference to CD, but are less specific. Bioversity International, IRRI and WorldFish appear not to have specific CD strategies, but training features in their websites and their activities. Among the 15 CRPs operating from 2011 to 2016, only A4NH (Agriculture for Nutrition and Health), CCAFS (Climate Change, Agriculture and Food Security) and Dryland Systems produced CD strategies.

It can be assumed that the PoWBs reflected strategic CD planning that had taken place in the first phase of CRPs. Looking across PoWBs from that period (2012-2016), the evaluation team noted that some gave detail on partnership and CD, but many did not, there being an underlying assumption that CD often merely occurs as a by-product of other activities. Enhanced capacity was sometimes described among the outputs in the PoWB documents, for example for the 2011 PoWB of CCAFS, which described “Enhanced capacity of national and regional climate providers, NARS and communication intermediaries to design and deliver climate information products and services for agriculture and food security management” as an output of the CRP, which CCAFS subsequently reported on. Dryland Systems, in its 2014 PoWB, presented planning at a much more local level, indicating quantitative targets; that 300 farmers in 4-5 communities at Action Sites would benefit from improved knowledge on water-use efficiency as a result of CD. However, the structure of the PoWB documents often made it difficult to identify important aspects of CD, including how CD was aligned to overall CRP strategy and planning, and what were the major CD milestones the CRP was planning to complete.

The PoWB documents were mostly unclear and inconsistent about how enhanced capacity was associated with the CRP’s impact pathways – whether CD was an output, an outcome, related to an assumption, or methods for achieving an objective. Many CRPs, judging by their PoWBs, seem to have assumed that by merely producing new knowledge products and tools, partners were able to take them up and enhance their capacity.

Overall, the PoWBs showed distinct differences among CRP CD activities, with many CRPs directing major attention to enhancing farmers’ (and other primary producers’) capacity to use improved technologies etc., and others focusing on researchers and policy-makers, including program partners. Although there was generally less explicit targeting of extensionists, compared with farmers, GRiSP (Global Rice Science Partnership), in its 2015 PoWB, specified the training of 130 extension workers (30 percent women) from 23 countries in integrated rice management through a hands-on, season-long production/post-production training course. It was unclear how directly the CRPs and Centers were involved in delivering training to farmers. A synthesis report looking at 15 CRP evaluations over 2014-2016 stated: “One type of capacity development activity that was found to be widespread in several CRPs is training through extension activities, often involving tens of thousands of farmers under bilaterally-funded projects. The evaluations questioned the comparative advantage of CGIAR for such activities”⁴⁷.

In their PoWBs, CRPs provided some detail on innovation platforms, a more recent approach to institutional CD, that subsequently were reported in the annual reports (as one of the performance

47 Birner, R. and Byerlee, D. (2016): Synthesis and lessons learned from 15 CRP evaluations. Summary Report, p. 10 (CGIAR-IEA).

indicators). Dryland Systems suggested in its 2014 PoWB “Project partners develop an innovation platform with farmer organizations, service providers and national initiatives to exchange information and develop capacity”. 2015 PoWBs included the following: MAIZE (CGIAR Research Program on Maize) intended to build a functional innovation platform infrastructure, and WLE (Water Land and Ecosystems) planned to produce new and strengthened agricultural innovation platforms to build farmer capacity on improved agricultural practices. The realism of addressing CD needs through these platforms in a substantive way was difficult to judge on the basis of the PoWBs.

Overall, to the evaluation team this suggested that, with some exceptions, CRPs were unclear as to where and how capacity was to be considered as an underlying assumption in the program theories of change and, more concretely, where CD efforts should focus along the impact pathways.

For Phase II all CRPs were required to develop CD strategies, but there was considerable variation in how this was done, based on ISPC extensive comments on individual CRP strategies

The evaluation team found insufficient presentation in the proposals of the CRPs’ and Centers comparative advantage, particularly concerning farmer training. PIM, however, made it clear that it “contributes to increased capacity of two main groups: researchers, and implementation partners. PIM does not engage in downstream capacity building directly serving farmers and local market agents, since that is already a strong focus of extension services, NGOs, and large private companies.”

Several CRP CD strategies were ambiguous concerning individual vs. organizational or institutional CD. RTB explicitly recognized the needs for these three levels of CD in its strong strategic approach. It cited three principles for the implementation of CD interventions: (1) pursue and foster partnerships with complementary capacities that respond to CapDev needs expressed by stakeholders (building on the lessons from the program’s first phase); (2) fully tap into the resources provided by the CGIAR CapDev community of practice, such as the CapDev framework and the suggested indicators for M&E of each element; and (3) CapDev professionals will work closely with issues related to data, information, knowledge and communication to allow a maximum level of availability, accessibility and applicability of CapDev products, processes, and lessons learned.

The PoWBs for 2017 were not available to the evaluation team, but in the agreed templates, CD was to be addressed through reporting key outputs and their contribution to outcomes anticipated in 2022, indicating where CD was the principal component of work done, or significantly contributing to the output.

In their Phase II proposals, most CRPs referred to the CapDev CoP framework and the ten elements of CD. MAIZE and WHEAT (CGIAR Research Program on Wheat) were exceptions as they used their own strategic priorities identified through internal review and informed by CRP evaluations⁴⁸. The proposals showed that different levels of importance had been placed on the ten CapDev CoP elements in each CRP, which was also occasionally reflected at flagship level. Several proposals for CD included a matrix that showed the emphasis of each element for each flagship. An example is for RICE in Table 2. CD strategies in the 12 CRP proposals for Phase II did not provide adequate detail for judging whether good practices (presented in section 1.2.3) were followed. Because the CRP proposals were developed for approval of funding and they needed to comply with detailed requirements in guidance templates for proposal submission, they may have focused less on elaborating on good practices for CD, including addressing clearly identified needs.

48 For further information: <http://iea.cgiar.org/evaluations/>

Table 2: CapDev interventions per flagship in Phase II (RICE)

CapDev Element	FP1	FP2	FP3	FP4	FP5
1. Needs assessment and intervention strategy					
2. Learning materials and approaches		x		x	
3. Develop CRPs and Centers' partnering capacities					x
4. Develop future research leaders	x	x			
5. Gender sensitive approaches throughout CapDev	x	x	x	x	x
6. Institutional strengthening	x	x	x	x	
7. Monitoring and evaluation of CapDev					x
8. Organizational development	x	x	x	x	
9. Research on capacity development				x	x
10. Capacity to innovate					x

Source: RICE CRP Phase II Proposal Document.

Gender has been included, as a cross-cutting topic, in all guidance documents and templates for proposal development, PoWBs and annual reports. While most CRPs have reported on gender-related CD, it has mostly addressed internal capacity on gender research. Several CD strategies, nevertheless, mentioned gender as an area for CD. Although CRPs were mandated to provide gender-differentiated records for CD, they did not explain how the gender-sensitive design and gender-related CD topics would feature in CD implementation.

Some CRPs included percentages of budget allocated to CD in their Phase II proposals (Table 3). Although representing only five CRPs, these budget estimates reflect very different levels of investment, and there is no clarity on what kinds of activity for enhancing capacity are included. As mentioned above, this renders these budget plans difficult to assess.

Table 3: Examples of Phase II CRP CD budgets

CRP	Budget estimates (total CRP budget)	Comment
A4NH	10%	Selected from all funding sources and 10% of the Windows 1 and 2 (W1/W2) budget for the six-year Phase II period
CCAFS	18%	
FTA	13%	Based on current planning, FTA (Forests, Trees and Agroforestry) plans to spend at least 10% on CD
L&F	7.8%	CRP will also invest in CD activities using the strategic investment fund
PIM	19%	

Source: CRP Phase II Proposals.

Overall, it was not apparent that the CRPs and Centers have been working together with regard to setting priorities, assessing needs of partner organizations, planning CD activities jointly, sharing of funds and joint monitoring. Such "collective action" will be crucial in order to increase efficiency and avoid duplication of efforts, especially in an environment where core funding is very limited.

Monitoring and Evaluation of CD in Centers and CRPs

Monitoring information on training in Centers is not standardized, and no systematic monitoring of results takes place for different types of CD; something that can to some extent be explained by the dominantly bilateral/project-level funding. Having concluded that monitoring at the System-level was poor, the evaluation team was unable to determine progress at CRP level, or determine on which bases CRPs (or Centers) themselves monitor CD activities.

Regarding professional training, the following Centers: AfricaRice, CIMMYT, ICARDA, ICRAF, ICRISAT, IFPRI, ILRI and IRRI, maintain comprehensive, up-to-date central registers and often track supplementary information such as training content, length, training modalities and group sizes. Little comprehensive monitoring information was available across Centers beyond attendance, gender and contact information. End-of-training feedback sheets were commonly used and 90 percent of surveyed training participants were satisfied with the opportunity to give feedback on training quality. End-of-training feedback was however not always stored and tracked. Concerning the very large numbers of farmers trained, end-of training feedback through a similar recording mechanism as used for research or extension professionals would likely not make sense, but the team did not note that any feedback mechanism would have been used for CD of primary producers.

Regarding academic education support, most Centers maintain comprehensive records of interns, students, and postgraduate researchers. The good level of participant monitoring was partly due to the fact that most human resources departments regularly collect information on individuals falling into this category for contractual and administrative purposes. As with farmer training, little comprehensive monitoring information was available for academic trainees beyond attendance, gender and contact information, and no results after training had been completed that were systematically tracked.

Interviews and surveys of CD focal points highlighted several monitoring challenges:

- › lack of staff and financial resources for updating and managing data;
- › fragmented recording of CD activities and low levels and delayed data entry especially for CD implemented as part of research projects;
- › confusion about CD beyond training and lack of monitoring standards;
- › risk of duplicating CD records in the Center/CRP matrix;
- › no clear responsibilities in Centers and CRPs for CD monitoring;
- › no appreciation of the usefulness of the data and hence limited motivation for tedious data collection work.

Some Centers and CRPs considered that they were not in a position to provide information to the evaluation team about CD participants for privacy reasons. Most Centers and CRPs do not have a policy or procedures concerning participant privacy and use of contact data in M&E. The evaluation team considers that for purposes of monitoring and follow-up (for example for establishing alumni communities), the identity of beneficiaries of publicly funded CD should not be kept anonymous, but there should be a practice to clarify this position among the individuals concerned.

In the last decade, several Centers have had their CD activities evaluated. However, only two such CD evaluations were recent. In 2015, IFPRI produced a comprehensive impact evaluation of its CD activities between 1985 and 2010⁴⁹, and IWMI conducted an internal Center-wide CD review in 2014⁵⁰. In its assessment of M&E practices, the IWMI study commented on the inconsistent approaches, including in monitoring of effectiveness and impact of CD, which reduces coherence and integration of CD activities⁵¹.

49 Kuyvenhoven, A. (2014): Impact Assessment of IFPRI's Capacity-Strengthening Work, 1985–2010.

50 Emmens, B. and Green, A. (2014).

51 *ibid.*

The CRPs have not conducted or commissioned evaluation of their CD activities, but the 15 CRP evaluations conducted or supervised by the IEA addressed CD as a cross-cutting topic. In most evaluations CD received little attention, and a synthesis of 15 CRP evaluations reported on the results, stating, for example, that: "Several evaluations point out that these activities have not been guided by an explicit capacity development strategy, and tended to be rather *ad hoc* and focused on training, with little attention to broader institutional development"⁵². A preliminary synthesis across a smaller set of IEA evaluations concluded that: "capacity development was the evaluation criterion that received the lowest level of attention"⁵³.

To characterize the CGIAR CD evaluations at Center level more thoroughly, the evaluation team built on a systematic meta-review of AR4D CD interventions published in 2013. The review screened more than 30 000 publications from 1990-2011 and identified 73 evaluations, reviews and research papers that assessed the outcomes and impacts of AR4D CD interventions. For this evaluation, the team asked the study authors to filter their results for CGIAR participation, which allowed a few observations to be made.

- › Almost half (34) of the 73 assessments involved CGIAR Centers and programs, reflecting the important role CGIAR has played in evaluating AR4D CD intervention. ISNAR (founded in 1978 and closed in 2004) was involved in 10 assessments and was the most active CGIAR Center. It is, however, to be noted that CD was ISNAR's mandate and it has been closed for over a decade.
- › The study authors rated the quality of CGIAR assessments slightly below 'medium', but slightly above the average rating for all other studies. The three best studies in the entire sample all involved CGIAR⁵⁴. The medium rating reflected quality issues perceived by the study authors: "[...] many of the included studies can still be criticized for lack of quality in terms of robust impact assessment methods or detailed reporting on methods and potential bias, which seems to be a general problem with this type of intervention and evaluation"⁵⁵. However, this valid critique needs to be nuanced with the recognition that there are only few impact assessment methods suitable for CD.

Based on its own review of more recent CGIAR CD evaluations, the evaluation team suggests that more systematic coverage of CGIAR CD, through evaluations commissioned by the programs themselves, is required to inform CGIAR's approach to CD. This reflects calls for more and better M&E of AR4D by the study authors⁵⁶. Moreover, because CGIAR has been the most important single provider of evaluative evidence in this field, the team considered it to have a responsibility to coordinate and guide the synthesis of lessons learned across CD project and program evaluations. While demonstrating impact is important for CGIAR, methodological challenges in assessing longer-term impact from CD cannot be overlooked. More emphasis should therefore be put on assessing how CGIAR's CD activities lead to enhanced and sustained capacity of partners, particularly at organizational and institutional levels (with contribution also from individual CD).

Organization and management of CD in Centers and CRPs

In Centers and CRPs, many CD activities have been implemented as part of AR4D projects and programs, and scientists in charge of implementing the projects have been expected to design and implement CD

52 Birner, R. and Byerlee, D. p. xvii

53 Roth, C. and Zimm, S. (2016): Synthesis and Reflections from Five CRP Evaluations: Report on a Meta-Analysis of Five CRP Evaluations, p. 9, 23.

54 CGIAR Science Council (2006), an evaluation of ILRI's graduate fellowship program: Eley, R.; Ibrahim, H.; Hambly, H.; Demeke, M.; Smalley, M. [Mulat Demeke]. ILRI, Nairobi (Kenya). 2002. Evaluating the impact of the graduate fellowship programme of the International Livestock Research Institute. A tools and process report, and an assessment of ISNAR's impact: Anderson, JR. et al. (2004): An Assessment of the Impact of ISNAR: 1997-2001.

55 Martin, A., Chancellor, T., and Posthumus, H. (2013): A Systematic Review on the Impacts of Capacity Strengthening of Agricultural Research Systems for Development and the Conditions of Success, p. 20.

56 *ibid*, p. 52–53.

activities themselves, or to seek assistance from within the Center or CRP, or from outside⁵⁷. CD focal points in Centers and CRPs identified good CD quality but were concerned about aspects of design, delivery, and follow-up. The management and support of CD has been largely a Center responsibility, and Centers have taken different approaches to managing the challenges. For example, AfricaRice, CIMMYT, ICRAF, ICRISAT, IFPRI, ILRI, and IITA have set up Center-based CD research support units to assist research projects with CD knowhow and with managing CD interventions. IRRI also had a dedicated CD unit focusing mainly on implementing CD.

Staffing levels for CD varied significantly across Centers. Most CRPs had CD focal points or the equivalent. Many were CD professionals, and often also the heads of Center CD units (e.g. GRiSP, FTA, Dryland Cereals, Grain Legumes, L&F, Humidtropics, WHEAT and MAIZE). In some cases, CRP CD focal points were scientists or managers with a different primary professional focus (e.g., PIM, WLE, RTB, Dryland Systems, CCAFS).

Interviews with CD focal points indicated that variations in structural setups and staffing were mostly related to funding. Traditionally, CD activities were often financed from unrestricted Center or program budgets. However, already during the start of the reform, core funding in the form of Windows 1 and 2 was limited and CD had shifted into bilaterally funded Center projects and programs. As core funding diminished even further, pressure increased on CD units to reduce their indirect costs. Interviewees felt that low unrestricted funding levels posed major challenges for recruiting good CD staff who could be retained over a longer period and thus effectively contribute to Centers' CD support capabilities. In several Centers and CRPs this led to erosion of CD coordinating and support functions as staffing levels declined. Several focal points considered that it was not possible to sustain CD activities in the face of current Windows 1 and 2 funding levels.

One potential solution to allow effective research support without unrestricted funding is to create in-house demand for CD research support functions, and to charge those costs to bilaterally funded projects, as was done at ILRI. Another example was ICRAF that, at the time of the evaluation, was transitioning from a model based on global research support costs and project taxes to a similar direct charge model.

In its review of how CD support was institutionalized in Centers (and CRPs), interviewees suggested several good practices listed below, for which Centers have experience.

- › Support from senior management and explicit expectations of CD in Center and CRP strategies. For example, CIMMYT and IFPRI recognized CD in their Center strategies and encouraged staff to contribute to training and other CD activities.
- › Management direction and support were considered crucial, but most interviewees felt that good CD could not be forced on research projects and programs. Fostering in-house demand, through demonstrating the added value of CD, would help. This could be done through project and program managers. For CD units, this translates into organizing themselves to be relevant to the needs and constraints faced by researchers. For example, ILRI hired an instructional design specialist whom projects could employ (and pay for), which resulted in hiring three specialists more, although the initial recruitment first met with skepticism.
- › Staff involved in CD activities should have such responsibilities included in their job descriptions and performance appraisals. Centers including ICRAF, IFPRI, ILRI, CIMMYT and AfricaRice have already done this, and IFPRI accords credit to research staff by allowing CD activities to be substituted for publications in appraising performance. There is genuine interest and willingness among scientists in Centers and CRPs to engage more in CD, provided research and CD workloads are balanced and adequately recognized.

57 In addition, some dedicated training programs were also implemented by CD units in some Centers.

- › There is variation in how CD management processes are integrated in Center/CRP management. For example IFPRI includes CD in its strategy and, based on interview feedback, others (e.g. ILRI) integrate CD processes operationally into their proposal appraisal process and project management cycles, which represents good practice. However, many Centers and CRPs do not have such processes in place.

Summary

In the strategic thinking that has guided CGIAR's reform, including the 2008 reform documents and the two SRFs, partner and stakeholder capacity was stressed as an important factor for effective partnerships in CGIAR and the realization of long-term impact of the System. Subsequently CD was emphasized as an essential component of CGIAR's activities. The underlying analysis, including that done by the ASTI program, has revealed under-investment and increasing differentiation among countries in terms of national research and educational capacity.

At the high level, CD by CGIAR has been identified as a strategic enabler of impact, CGIAR's role has been described as catalytic, and the needs basis for CD has been emphasized. However, clear guidance has been lacking about where CGIAR's comparative advantage lies and how CD should be prioritized. There are two areas where CGIAR could be potentially moving beyond its comparative advantage: developing or building capacity in countries where it is seriously lacking, and providing training downstream (which is also analysed in Chapter 3).

The central governing bodies, the Fund Council and the Consortium Board, had CD in their meeting agenda, but the latter did not substantially discuss CD for the last eleven meetings that were reviewed. Issues related to CGIAR's CD strategy and mainstreaming CD through a System-level approach were discussed. The evaluation team concludes that these bodies did not devote sufficient attention and expertise to CD as resource-intensive activity and central to CGIAR's success, in particular for reaching decisions on actions needed to carry through the thinking and initiatives. Given that CD is primarily a Center responsibility, particularly as CD has become largely dependent on bilateral funding, the evaluation team sees much more need to engage Center boards and management in System-level consultation about CD.

At System-level, the CapDev CoP has been active in influencing visibility of CD and developing conceptual thinking and guidance documents. The CapDev Framework (developed by the CoP) was used by the CRPs for drafting their CD strategies for Phase II as well as by ISPC in its appraisal of proposals. It is a good example of how a system wide-initiative can bear fruits with modest investment. The evaluation team observed a direction to embed CD activities in ongoing research programs. While a System-level theory of change for CD would inevitably be too generic, the evaluation team considered, in line with the CGIAR Capacity Development Framework developed by the CapDev CoP, that the programmatic theories of change should incorporate CD dimensions because capacities influence and enable research, development processes and development outcomes.

At Center and CRP level, strategies vary regarding content and detail about CD. The annual CRP PoWBs did not provide consistent information about how enhanced capacity, and CD activities planned, were associated with CRPs' programmatic planning. The annual performance reporting did not clearly link with PoWBs, and reporting ranged from mere indicator records to extensive narrative. Regarding Centers, that are not well reflected in CGIAR reporting for CD they conduct, some keep extensive records, but others less so. The System-level practice of reporting does not amount to a well-functioning monitoring system that would be useful for documenting progress and learning. The evaluation team questions an indicator-based, quantitative results approach. It concludes that a more informative and realistic option would include better tracking of individuals and interventions and documenting outcome narratives. More systematic coverage of CGIAR CD, through reviews commissioned by the programs themselves

is required to inform CGIAR's approach to CD, and providing assessment of how CD activities lead to enhanced and sustained capacity of partners, particularly at organizational and institutional levels.

The evaluation team found that the trend of limited availability of core funding has affected resourcing CD units and staff at Centers, in particular, which in turn is likely to affect follow-up and monitoring of CD results. Innovative approaches, such as creating in-house demand for CD research support functions, and charging those costs to bilaterally funded projects, could help. The evaluation team concludes that, in light of how CGIAR's funding structure evolves, integrating CD planning to program theory of change and prioritizing the activities that Centers and CRPs can sustain becomes even more important.

3. Capacity development at individual level

This chapter describes and analyses the CD activities at individual level, which represent the largest CD effort by Centers and CRPs in terms of resources devoted to planning and reporting, compared with CD at organizational and institutional levels (discussed in Chapter 4). Individual CD was assessed according to three categories: individual training, academic education support, and CD through scientific collaboration. This chapter is structured correspondingly. The analysis in this chapter is based on the evaluation team’s review of CRP PoWBs and Annual Reports, which were used for compiling information on CD targeting and implementation, interviews with CGIAR CD focal points, an online survey and follow-up interviews with former trainees.

In addition to presenting the activities that have taken place in the CRPs, the chapter provides the evaluation team’s assessment of relevance, including CGIAR’s comparative advantage, and effectiveness of CD at individual level.

The evaluation team used annual reporting as its main source of records for CD activities. The team did not attempt to construct a comprehensive record of all activities given that comprehensive typology and reporting for CD was not available; systematic reporting of any kind has only been requested from CRPs since the reform, and the correspondence between CRP records and those who would have been available from Centers was unclear.

As discussed in Chapter 2, CRPs have been asked to report individual training of two kinds, CD in short-term programs and CD in long-term programs. The two categories correspond with the evaluation team’s focus on short-term individual training (short-term programs) and academic education support (long-term programs). CD through scientific collaboration can be considered “informal” CD, as it was termed in the 2006 training study⁵⁸. This type of CD was not recorded or quantified and there has been no reporting requirement related to it.

58 The respective category in the study was defined: informal on-the-job individual training in the context of collaborative research projects.

Context

Individual CD has traditionally been a strong focus area of CGIAR. Two previous evaluations of CD (1986 and 2006) presented comprehensive accounts of training for building human resource capacity in developing countries and NARS. The 2006 study, in particular, forms a context for evaluation of individual CD by this team⁵⁹. Traditionally, individual CD through courses of variable length targeted at agricultural professionals and individual degree studies have formed the core of CGIAR's activities. Individual CD through research collaboration and mentoring has also had a well-recognized role in individual CD, and it involves mutual knowledge exchange between CGIAR scientists and their non-CGIAR counterparts.

At regional and country levels, IFPRI's ASTI project generates valuable information on human (in addition to financial and institutional) resources across the kinds of organizations that CGIAR partners with and targets its CD activities; government, higher education, non-profit and private for-profit agricultural research agencies⁶⁰. It analyses trends in agricultural research staff, including participation of women in research and development. The Food Policy Research Capacity Indicators collected by IFPRI is reported in Global Food Policy Reports on an annual basis. These data at national level are useful but need to be supplemented by more specific needs assessment by Centers and CRPs.

Individual CD is strongly linked to CD at other levels. For example, the evaluation described several ways in which CGIAR CD had left footprints beyond individual trainees and projects in which they worked: i) policy leverage, where lessons learned influenced policy, ii) institutionalization, where institutions are formed and continue to exist, iii) "spill-over", where a trainee initiates a significant organizational change process, iv) replication, where partners are enabled to replicate similar projects on their own, and v) empowerment, where individuals are enthused and empowered through training and enact long-term career changes with long-term positive outcomes⁶¹.

Short-term individual training

Activities and targeting

Individual training in short-term programs, in particular, has encompassed a broad spectrum of trainees, as described in annual reporting guidelines: farmers, ranchers, fishers, and other primary sector producers, rural entrepreneurs, processors, managers, and traders, extension specialists, researchers, and policymakers. Reporting, however, did not differentiate among the various trainee types, and the purpose, targeting and conduct of training were not explained in a standard manner in either PoWBs or Annual Reports. The evaluation team also observed that annual reporting did not correspond with information contained in PoWBs and over the years there was large variation in both types of CRP document in terms of content detail, format and length. Furthermore, activities in 2011 and 2012 were not comprehensively reported because during that period some CRPs were still in their approval process: those approved were only initiating their activities, and reporting requirements had not been set.

The data in Table 4 provide a broad indication of the CD at individual training level that took place within each of the CRPs between 2013 and 2015. The actual data are set against target data.

59 CGIAR Science Council (2006)

60 for further information see: <https://www.asti.cgiar.org/about>

61 CGIAR Science Council (2006), p. 84

Table 4: Numbers of long- and short-term trainees in CGIAR over three years reported by CRP

CRP	2013		2014		2015	
	Target	Actual	Target	Actual	Target	Actual
A4NH	20,264	90,005	91,250	347,490	100,000	117,509
AAS		113,796	139,452	131,000	130,000	129,000
CCAFS	13,500	24,057	14,000	48,300	20,000	55,106
DC	1,500	1,834	1,750	10,099	1,750	10,548
DS	180,000	232,500	1,000,000	358,867	310,203	87,396
FTA		6,751	4,000	6,792	4,000	49,800
GL	10,000	40,303	43,105	16,714	8,000	16,000
GRISP	2,500	93,845	70,000	28,030	30,000	14,857
HT	1,950	1,958	2,100	2,029	1,480	1,543
L&F		5,127	11,642	7,222		139,866
MAIZE	26,000	50,180	26,000	28,114	26,000	39,129
PIM	18,000	16,471	18,000	9,449	9,000	9,346
RTB	30,500	29,257	30,500	32,341	32,000	36,542
WHEAT	21,642	17,300	17,000	5,157	4,000	20,807
WLE		8,107	6,958	14,287	11,430	13,041
Total		731,491		1,045,891		740,580

Source: CRP Annual Reports 2013-2015

The evaluation team did not regard these data as complete or accurate in all instances. Some data were unavailable and some appear to be anomalous. Moreover, there is likely to be double counting of some data. For example, Dryland Systems, in its PoWB, was very thorough in presenting data, and specified that many figures represented joint efforts with other CRPs, which might have been included in the figures reported by those partner Centers/CRPs.

The evaluation team also found some examples of CD methods for mass dissemination of training messages. Some such innovative projects have applied non-conventional approaches or subjects, such as the CIFOR-supported radio program "Au rythme des saisons" (Changing Seasons) to educate poor Congo Basin communities in their local language about climate change, and an interactive theatre project supported by WorldFish in Egypt aimed at boosting the confidence of women fish vendors. Purely numeric reporting does not capture these kinds of approaches and initiatives.

The figures for short-term training were, in many instances, exceptionally large. However, the evaluation team did not establish a clear explanation for all the large numbers, but the examples indicated that they included training of primary producers in particular. For instance, Dryland Systems, according to PoWBs, included largely farmers and individuals from other rural groups among its short-term training. In addition to Dryland Systems and Livestock and Fish -L&F- (in 2015), A4NH and AAS (Aquatic Agricultural Systems) reported very large numbers and likely included farmers or groups and community participants in their counts. Other examples are given in Table 5, which provides some details of CD events with numbers of attendees, particularly farmers. The examples suggest that trainee numbers reported by CRPs of tens and hundreds of thousands largely represented training of primary producers.

The team also observed that in some cases the set targets were unrealistically ambitious. Dryland Systems in 2014 is an example, where it was expected that a million individuals would have been trained

through short-term programs, but only a third of the target was actually reached. In other cases, CRPs targeted a much more modest and realistic number of individuals, but in instances exceeded their set targets, as was the case for GRiSP in 2013. In such cases, it may be that an opportunity arose to extend a training or CD event to a much larger number of participants or audience than had been specified in a CD plan. The most consistent records for both targeting and reporting were available for Humidtropics, which in its CD focused on setting up innovation platforms (see Chapter 4). PIM, which also had consistent planning and reporting records, indicated clearly in its documents that it did not target farmers or extension specialists. Whatever the explanation behind the very substantial variation observed for most CRPs, the team concluded from the published numbers that short-term training appeared not to have been consistently planned or implemented.

It is however clear that a few CRPs, two of the System programs, Dryland Systems and AAS, prioritised short-term training because their records for long-term programs (reflecting academic education support) were very small relative to those for the other CRPs (Table 4). Humidtropics, also a System program, was a clear exception among CRPs because it did not seem to have prioritised short-term training to any appreciable extent. L&F did not consistently train farmers, but in 2015 reported nearly 140 000 short-term trainees of whom 92 percent were trained in a large program on good management practices for fish farmers in Bangladesh.

It is not certain, and in the case of very large figures unlikely, that the CRPs directly trained the numbers of individuals reported. There were few details available about the nature or format of short-term programs provided locally at farming or community level to explain how or by whom the training was done. It is likely that these events included demonstrations, farming family training or other group events where large numbers of individuals were reached. For example, GRiSP reported having arranged some large-scale participatory demonstrations. Training through extension activities seems to have been widespread, often involving tens of thousands of farmers and carried out under bilaterally funded projects.

Table 5: Examples of short-term CD reported by various CRPs

CRP	Year	Type of CD
A4NH	2013	Short-term training for >85,000 farmers, agricultural extension agents, frontline human and animal health workers, and research professionals in the use of new technologies, food production techniques, nutrition education, crop selection methodologies and aflatoxin detection and management.
A4NH	2014	Training provided by A4NH and partners in production, management, commercialization and nutrition education to build capacity among >347,000 farmers, technicians, community resource persons, retailers and marketing representatives, caregivers, and policymakers.
CCAFS	2013	Successful training of >600 farmers in precision nutrient management based on the Nutrient Expert Decision Support tool in South Asia, leading to yield gains of 0.5 to 1.5 t/ha (CIMMYT); >600 farmers trained in crop planning linked to weather forecasts in West Africa (ICRAF); and >2,800 farmers on a web-based diagnostic tool for farming decisions in Colombia (CIAT).
CCAFS	2014	Climate Smart Villages (CSVs) grew as a focus for capacity development in all five regions; in South Asia, for example, CSA demonstration plots of rice (20 plots), maize (15 plots) and sugarcane (20 plots) were established and about 3,000 farmers (50% of them women) were trained in CSA practices and technologies, spanning 67 CSVs.
DC	2015	Farmers' field days for sorghum and millets were attended by 3633 farmers, 1605 of whom were women. The barley program organized a total of 17 field days where an estimated 3,570 participants attended, including 510 women.
GL	2012	1,501 farmers, including 139 women, plus more than 50 seed technologists from the private sector were trained in pigeonpea variety and hybrid seed production.
GL	2015	A total of 1,382 stakeholders (farmers, DoA officers and technicians, NGOs and ICRISAT staff members) including 382 women attended various awareness meetings, seminar-workshops, training on crop seed production, IPM/IDM, and Farmers' Field Days. 64 farmers' trainings and 32 field days were conducted to train farmers in lentil cultivation and seed production by ICARDA. Reported participation for farmers' field days across the program were 15,070 women and men farmers.
GRISP	2013	Together with the MAIZE and WHEAT CRPs, GRISP contributed to the training of >52,000 farmers in India and Bangladesh on improved crop management and seed technologies for cereal crops (rice, wheat, maize).
RTB	2012	During the project, training of tissue culture nursery operators and farmers was undertaken in East Africa. In Burundi and Uganda, >700 farmers were trained during more than 250 training sessions, and 150 nursery operators during 20 training sessions. In Kenya, farmers and nursery operators were trained together, and 75 training sessions were organized. Individual farmers or nursery operators attended up to 40 training events, over 1–2 years.
WHEAT	2014	First phase of the Arab Food Security Project (2011–2014). 25,700 farmers benefited from field days, farmer schools and travelling workshops, with an average 28% increase in wheat yield across all countries from large-scale on-farm demonstrations of improved wheat varieties and agronomic practices.
WHEAT	2015	In 2015, 17,000 farmers and scientists took part in nearly 400 regional training events worldwide, organized by different projects in the WHEAT portfolio. They included field days, workshops and intensive training courses in the areas of sustainable intensification, breeding/seed systems, and socioeconomics research, and took place in Afghanistan, Bangladesh, Mexico, Tunisia, Uruguay, China, Ethiopia, India, Kenya and Nepal.
WLE	2015	For example, a three-year participatory research project (2012–2015) on the enhanced use of crop varietal diversity in integrated production and pest management implemented in China, Uganda, Ecuador and Morocco trained >15,000 farmers (50% women) in pest and disease management, seed cleaning, seed multiplication, and producing and storing seeds.

Source: CRP Annual Reports 2013–2015

These examples provide some indication of the purpose of training provided. For example, CCAFS's reporting on farmer training was very explicit, which indicates planning and implementation in line with the proposed strategy. However, many CRPs in their narrative reporting amalgamated various classes of trainee that contributed to the total number, thereby making it very difficult to assess whether such training was in any way linked to planning of CD along the impact pathway. For example, A4NH reported on farmers and researchers or policy-makers, and WHEAT on farmers and scientists together in a summary statement. Such reporting mixed not only different types of trainee (in some cases even Center staff), but different purposes and modalities of training, assuming, reasonably, that a researcher is trained using different methods to those used for a farmer. Similarly, Dryland Cereals' and GL's reporting on farmer field-days, awareness meetings and seminar-workshops illustrate how much variation in purpose, trainee type and modality was hidden in the numbers reported for the short-term program indicator.

The first CGIAR Portfolio report for 2012 reported on CD, but on the basis of relatively few CRP reports. The focus in the Portfolio report was solely on numbers; it reported training of over 300 000 individuals, suggesting that the real numbers were much higher, and highlighting how impressive those numbers were. In indicator reporting, attention seems to have been on quantity rather than purpose. Conversely, performance indicators that focussed on numbers, likely led to an increase in those numbers for many CRPs. This was observed in the 2006 training study that reported the co-incidence of a training count indicator used in one year, and a ten-fold increase in trainees in one Center resulting from inclusion of farming families in the numbers.

The three-year data on training volumes allow comparison with the most recent evaluation of training in 2006. The reported number of individuals in short-term training has increased substantially from fewer than 10 000 per year reported in 2006 to over 800 000, on average, in three recent years (almost a million in the peak year 2014), reflecting more "downstream" training at field level. The 2006 evaluation concluded, and the Science Council in its commentary supported this conclusion, that CGIAR did not have a comparative advantage for downstream training. From the CRP reports, however, it is not clear what the CGIAR Centers' role is and whether all the individuals included in the counts had been trained by CGIAR directly. It is also unclear whether the increase in the field-level training detracted from training research staff. The indicator values do not reveal such differences. It is likely that CGIAR's focus on delivering development results may have led to training of end-users to enhance uptake and use of new technologies. This focus has a very different purpose and by necessity narrower scope than focus on partners, and other intermediaries along the impact pathway for playing a catalytic role and multiplying the investment on their enhanced capacity and subsequently scaling the CGIAR's contribution to development outcomes. The synthesis of 15 CRP evaluations identified and questioned the comparative advantage of downstream CD. It also found that this question had long been debated in CGIAR, but that the topic remained unresolved and required further attention⁶².

Survey of individuals in short-term training

While the annual reporting allowed the team to make conclusions about CGIAR's comparative advantage in training of individuals, it used the survey and interviews to explore to what extent those trained judged the training as having been relevant and effective. As described in Chapter 1 regarding methods and limitations to this evaluation, the survey of individual trainees suffered from several shortcomings. The survey could not cover the largest groups of those trained, namely farmers, other primary producers, community groups and extension agents. For those groups, a survey would not have been an appropriate method of securing feedback in any case, but the team had no possibility to use alternative methods to

62 Birner, R. and Byerlee D. (2016), p. 53.

assess how relevant and effective those groups considered the training they had received to have been. In interviews, the CD focal points voiced concerns about the quality of training of this group in particular. The survey covered mainly scientists and other professionals working for the types of organizations that CGIAR targets.

The survey was targeted at a representative sample of participants of short- and long-term training by CGIAR centers as well as a sample of collaborations, which were expected to lead to increased capacity. However, the evaluation was dependent on Centers supplying contact details, and it could not be determined how large the proportion of trainees was for those included in the survey. As with all surveys of this kind, responses were likely received from those most satisfied with CGIAR CD and still employed in a relevant field. Furthermore, the responses reflected uneven representation of the various Centers and CRPs. Some were absent altogether, which was not considered as indicating lack of satisfaction, merely inability to contact them and elicit a response.

The questionnaire was sent to 5 798 individuals and it elicited a response from 810 (14 percent response rate) representing all regions. Over 80 percent of the respondents worked for research organizations, universities or their national civil service. Females represented 32 percent of respondents. Of Centers, IRRI, ILRI, AfricaRice, CIAT and CIMMYT each accounted for more than 10 percent. Sixty percent of training was accomplished through workshops and 78 percent represented part of a broader CD program. The trainings reported had been in groups of about 10-30 individuals and generally conducted over 1-2 weeks. Most had received training in plant breeding (17 percent), crop production (12 percent) and biotechnology (8 percent), while only about 1 percent reported training on gender studies and teacher training each accounted for only about one percent.

With respect to all questions that addressed aspects of relevance and effectiveness of CD to needs and expectations, the response was overwhelmingly positive, over 94 percent responding that the training was 'exactly what they needed for their professional development'. Among the main reasons for success of training, the respondents reported the high quality of trainers, high quality of the training and field experience.

However, there were indications that relevance of CD to home country circumstances could have been improved by providing more hands-on experience and improving liaison between participants and organizers to set CD objectives better. A quarter of respondents considered that uneven levels of knowledge and experience created problems during the training, indicating shortcomings connected with participant selection. More follow-up after training was also identified as being necessary. This was linked with absence of further training possibilities and severance of contact between course organizers and participants after the training had ended. These comments suggest that there is scope to improve the effectiveness of short-term CD through some means of follow-up and maintenance of contact.

Nevertheless, about 80 percent of respondents indicated that they had applied the new knowledge and skills obtained through CD in their workplace, with only about 10 percent reporting limited resources as being a barrier to application of the new skills and knowledge. This corresponded with over 80 percent reporting a positive change in assuming work responsibilities, although for many the training did not result in promotion, new work responsibilities, contribution to changed policies or strengthening of management and governance. Considering short-term training, this could not be expected either.

Other areas that were perceived as requiring strengthening, to improve the impact of CD, included the need to improve contacts with organizations and individuals outside CGIAR and improve information technology and management/leadership skills.

Academic education support

Activities and targeting

Unlike short-term training where reporting included a very wide range of participants and types of training, reporting of CD for long-term programs was very clearly defined to include degree, fellowship and postdoctoral programs. The records for the indicator on long-term CD are presented in Table 6.

Table 6: Trainees in long-term program CGIAR over three years reported by CRP

CRP	2013		2014		2015	
	Target	Actual	Target	Actual	Target	Actual
A4NH	35	128	120	180	100	341
AAS		9	7	12	7	135
CCAFS	1000	385	400	122	195	100
DC	40	53	35	29	30	117
DS	30	47	49	100	59	82
FTA		213	100	323	200	122
GL		3	17	67	80	35
GRISP	350	404	285	436	400	185
HT	18	72	78	62	82	70
L&F		45	17	104		111
MAIZE	96	229	90	267	90	466
PIM	230	328	230	313	200	143
RTB	102	91	102	121	110	84
WHEAT	63	186		80	48	98
WLE		197	289	306	245	195
Total		2390	2502	2502	2194	2194

Source: CRP Annual Reports 2013-2015

The records for long-term CD range between a few individuals (Grain Legumes 3 persons in 2013) and close to 500 (MAIZE 2015). Given the nature of this CD, it is more likely that the numbers represent planning and clear intention more accurately than in the case of short-term training, and the figures for long-term CD remained relatively constant over the three survey years. In some cases the actual figures substantially exceeded target figures (for example A4NH, particularly in 2013 and 2015, GL and L&F in 2014 and AAS, Dryland Cereals and MAIZE in 2015). In 2015, most CRPs reported numbers lower than those targeted. While the reporting did not reveal reasons for these deviations, it may have related to funding opportunities or deficiencies. The volume of CD in academic education support has remained at a similar level as a decade ago when records were last collected.

It is clear that most individual-level CD activities (including short- and long-term programs) have been embedded in Center projects that have provided focus and addressed concrete capacity and development challenges. ICARDA's Young Agricultural Scientists Program that provides mentoring and training for emerging young scientists is an example of activity dedicated to CD but closely related to the Center's research area. Similarly, ICRAF has supported the African Plant Breeding Academy as part of the African Orphan Crop Consortium.

On a larger programmatic scale, CGIAR has also supported programs dedicated to academic education support. As mentioned by Lynam⁶³, such support through existing regional entities or platforms can foster economies of scale and scope.

For example, IFPRI played an important role in establishing the Collaborative Master of Science in Agricultural and Applied Economics (CMAAE) program that supports graduate-level scientific capacity in agricultural and applied economics in Africa (for its role in institutional CD, see section 4.2). Several other CGIAR programs, Sub-Saharan Africa Challenge Program (SSA-CP) and the Generation Challenge Program (GCP) had individual (in addition to organization) level CD as integral parts of their mandate.

Also several CRPs have been supporting scholarship programs with Windows 1 and 2 funding. For example, GRiSP, from its initiation, has run a scholarship program to build a new generation of rice scientists. According to a GRiSP evaluation in 2015, this program suffered from cuts in core funding. A4NH launched an Agriculture, Nutrition, and Health Academy (ANH) in June 2015. The ANH Academy is open to any researcher working at the intersection of agriculture and food systems, nutrition and/or health. The Dryland Cereals Scholarship Program has been jointly administered by the respective CRP, in partnership with the Asia-Pacific Association of Agricultural Research Institutions (APAARI) for Asia, the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) for East and Southern Africa, and the West Africa Centre for Crop Improvement (WACCI) for West Africa. Also Grain Legumes in 2015 reported on the Legume Scholars Program.

IFPRI leads training in modelling in Africa under the African Growth and Development Policy (AGRODEP) program. In 2012, PIM reported that professionals from 23 African countries had been exposed to advanced modelling techniques and linked through a professional network. This program therefore also represents institutional CD (discussed in Chapter 4).

CIMMYT has continued its international wheat improvement training courses that have been a major part of the Center's commitment to long-term, in-depth capacity development. In 2015, WHEAT reported on the Basic Wheat Improvement Course, a three-month intensive program at the Campo Experimental Norman E. Borlaug in Ciudad Obregón, in Mexico, which targets young and mid-career scientists from around the globe, focusing on applied breeding techniques in the field. Another wheat CD initiative is the Jeanie Borlaug AWARD Program for Women in Triticum, established by CIMMYT's global wheat program and Cornell University as part of the Durable Rust Resistance in Wheat Project.

The above examples all relate to center/CRP specific capacity building and respective core competencies. With the greater emphasis on food system challenges and NRM, it would be interesting to explore opportunities for fellowship programs that address multi, inter and transdisciplinary academic challenges facing agricultural development. This would be an example of an area where CGIAR could provide CD through a collective action.

Survey of individuals for academic education support

The questionnaire was sent to 4 472 individuals and 928 responded. The response rate of 21 percent was considerably higher than that for short-term training. A few countries, all host countries of CGIAR Centers, were well represented among the responses. Kenyans and Kenyan universities represented about 15 percent, with India and Colombia each representing about 7 percent. Many developing countries were represented. Masters and doctoral degrees were sought by 3 and 25 percent of respondents respectively while 21 percent had been studying for bachelor degrees. Women accounted for nearly half (43 percent) of the respondents. The academic support had resulted in about 80 percent of respondents

63 Lynam, J. (2016).

having completed their studies and 20 percent continuing them at the university from which they came originally.

The Centers were variably represented among the responses. Over half of the trainees (55 percent) had worked at a Center for more than six months. The largest numbers had worked at CIAT (15 percent), ILRI (13 percent) and CIMMYT (13 percent). The CIAT and ILRI association is likely to correspond with large numbers of respondents coming from Colombia and Kenya, while the CIMMYT trainees were from many countries and the smallest numbers from ICARDA and CIFOR (both one percent). Regarding the CRPs, Humidtropics, AAS, Dryland Cereals and Dryland Systems attracted fewest graduate students and MAIZE, GRiSP, Grain Legumes and RTB the most. Two of the most common topics (each reported by over 10 percent) were the same as in short-term training, namely plant breeding and biotechnology. In addition, Natural Resource Management (NRM) and social science (including agricultural economics) were among the most popular themes. Other topics were listed, which the evaluation team considered reflecting well what is known about the evolving research capacity needs in developing countries; namely soil science, food science and nutrition, statistics and data management, rural development and agribusiness, and information technologies. Gender studies were at the other extreme, and accounted for only one percent of responses. It is likely that gender CD was targeted more often through short-term programs than academic education support.

Online survey respondents characterized academic education support mostly as supervision and mentorship by CGIAR scientists, and as receiving financial support. To a lesser degree, access to CGIAR, equipment and data were considered important characteristics.

All aspects of support and the working environment in the Centers, including reputation, were viewed very positively and rates of satisfaction were very high. Respondents highlighted that support had been excellent and that activities at CGIAR had mainly been relevant for their studies, and that support had been well integrated with their university programs.

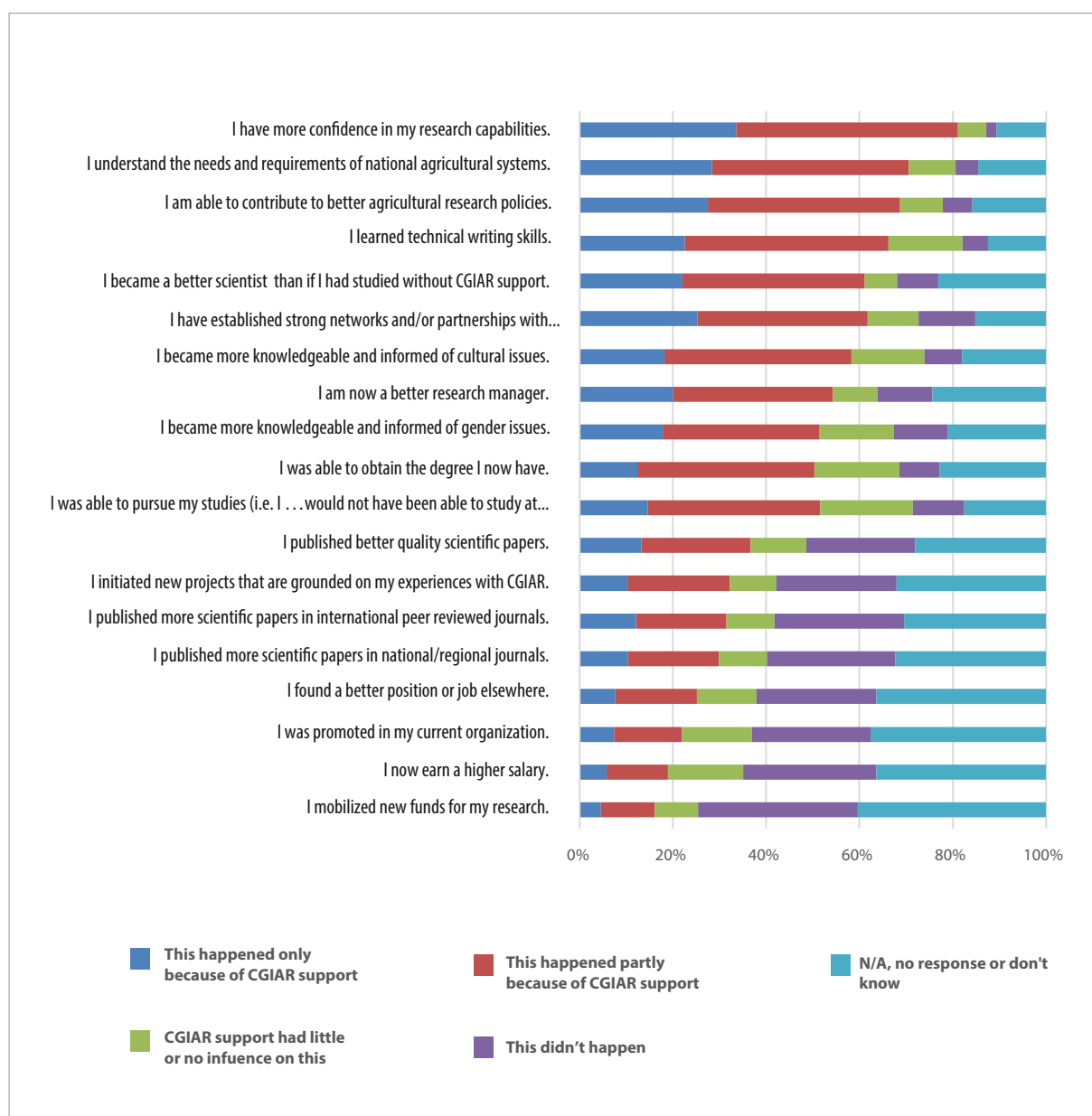
Overall, the survey provided a strong testimony about the quality of teaching and supervisory skills, the quality of teaching methods, and the availability of supervisors and the opportunities to provide feedback. They also expressed their highest levels of satisfaction with the scientific expertise of their CGIAR supervisors and, separately, of their colleagues at CGIAR across 15 quality-related criteria. Trainees also indicated that the wish to work with particular CGIAR scientists had strongly influenced their choice for CGIAR. While the evaluation team received some comments from CD focal points interviewed that too little attention was paid to the pedagogic skills of CGIAR staff providing academic education support, the team found no further evidence of deficiencies in terms of supervision. In his regard, the team considered it commendable that ICRAF, for example, managed this “art of supervision” by actively selecting and matching supervisors and trainees.

In addition to high quality supervision, respondents felt CGIAR had provided an excellent learning environment. They provided very positive feedback on several quality indicators: clarity of language used, sufficient time for practical applications and skill development, adequate amount of learning content, good network building among trainees, and effective learning from other CGIAR researchers. Reflecting what is considered good practice in CD (see section 1.2.3), academic trainees felt valued as people, and their cultural background was respected. Female and male trainees experienced equal learning opportunities.

There were relatively few who considered that improvements to the CD were needed; 8 percent of respondents suggested that closer supervision could improve relevance and effectiveness of academic support. They also commented on the need for increasing funding. Among the more critical feedback, a sizable number (16 percent) of respondents felt that their continued relationship after they had left CGIAR could have been better.

Significant numbers of respondents in long-term training indicated that the academic support received at the Centers had resulted in positive outcomes. Nevertheless, it had had little influence on promotion, subsequent job improvement, salary increases, publication output or mobilization of new funds in the home country. With this group, those kinds of effects, from what can be considered substantial professional capacity development, could have been expected and therefore it is surprising that very few reported on such benefits. However, given the purpose and objectives of CGIAR’s CD, the positive finding from the survey was that it reflected generally high levels of satisfaction with CGIAR’s academic education support, which was very relevant to the individual capacity needs in agricultural research for development. Much of this information is detailed in Figure 1.

Figure 1: Capacity-related outputs and outcomes of academic education support (n=928).



Source: IEA survey.

Capacity development through scientific collaboration

Great importance has been attributed to CD of professionals through collaborative research and mentoring. This type of informal, 'on-the-job' learning was considered important and effective in the evaluation team's interviews and in earlier evaluations⁶⁴.

Trainees in this third group were either i) visiting non-CGIAR scientists at CGIAR Centers or CRPs returning to their scientific home institutions afterwards, or ii) non-CGIAR scientists remaining in their home institutions but engaging in intense scientific collaboration with CGIAR peers (including being visited by CGIAR scientists), which contributes to strengthened research capacity. It should be noted that in scientific collaboration CD is not one-directional, but also CGIAR scientists are likely to gain from their non-CGIAR counterparts.

Despite the importance given to such informal CD, few systematic data were available for type, content and volume of this form of CD. The situation has not changed from about a decade ago, when the 2006 evaluation of training commented that "Informal training and learning [in research collaboration] has not been documented traditionally in the CGIAR, and this report appears to be the first that has attempted to quantify its importance". That evaluation estimated that CGIAR researchers spent about 12 percent of their total work time on this type of CD, about as much as on the formal training activities discussed above⁶⁵. For its survey, the evaluation received contact information for 2 470 collaborators, whom the Centers considered suitable for a CD survey. From interviews within and beyond CGIAR, the evaluation team assumed that scientific collaboration that lead to mutual CD is frequent, likely involving thousands of collaborations. However, there are only some proxy indications for how many people and organizations are involved in this type of CD. In a 2013 survey⁶⁶ that targeted close to 4 000 CGIAR stakeholders and partners, more than half the respondents represented scientific institutions. In the survey repeated in 2015 and covering 7 376 research-related collaborations of 934 CGIAR researchers and development/outreach professionals, respondents associated 85 percent of all collaboration with own and/or collaborator CD. Respondents to that same survey selected technical capacities, facilitation of platforms, networks and dialogues, exchange of information and knowledge management and sharing as the most important types of CD in scientific collaboration⁶⁷.

In 2015, IFPRI published a thorough Center-wide impact evaluation of its CD activities between 1985 and 2010. In this review, collaborative research, including informal on-the-job-training, was found to be widely appreciated and generally effective as an instrument for strengthening policy research capacity. Adaptation to country context, the right mix and sequence of CD activities over time (e.g. from strengthening basic skills to collaborative research and outreach), and the right type of counterpart organizations (e.g. with an explicit policy research mandate) were found to be important success factors⁶⁸.

Survey of scientific collaborators

The questionnaire was sent to 545 individual scientific collaborators and with 125 responses, the response rate was 23 percent, the highest of all three groups. Twenty six percent of respondents were

64 For example: Emmens, B. and Green, A. (2014), .Kuyvenhoven, A. (2014).

65 CGIAR Science Council (2006), p. 35.

66 Analysis based on (Ekboir, J. and Sette, C. 2015) and Ekboir, J. Sette, C. and Angellini, (2016): Analysis of the Portfolio of Activities and Networks of the CGIAR Research Program MAIZE: Draft."

67 ibid.

68 Kuyvenhoven, A. (2015).

women. Most respondents had a masters or doctoral degree (83 percent). India and USA stood out as the most frequent countries of origin (each 10 percent), although many developing countries and all regions were represented. The 2006 training study reported about the 12 percent of individual trainees coming from developed countries and highlighted the size of that group. The vast majority of respondents worked in developing countries – 6 percent from Australia and 2 percent from Spain, which in addition to the 10 percent from USA, represented the developed countries. The responses did not represent all Centers, IITA and WorldFish (and subsequently AAS and Humidtropics) being completely absent. Most respondents had collaboration with CIMMYT (33 percent) and Bioversity International (10 percent), and fewest with ICARDA and CIFOR (each 2 percent). Collaboration mostly began between 2012 and 2014 and for 67 percent of the respondents collaboration was ongoing. The form of collaboration was reported to involve, in the main, coaching and mentoring, information exchange, work on joint projects and joint publication cooperation. The most popular areas of collaboration were plant breeding, NRM and social science.

CGIAR was highly regarded over all aspects canvassed and levels of satisfaction were invariably high, but room for improvement was identified by some regarding funds for travel among collaborators.

Virtually all respondents were satisfied with the common understanding of the collaboration, the roles and responsibilities between the collaborating institutions, and with mutual understanding of each other's institutional settings. Collaboration was overall reported as having been very effective. Respondents reported positive outcomes on issues including improved technical capacity and skills, motivation, networking and partnerships skills beneficial for future scientific work, and improved relevance of research to national and international needs. Also, confidence in the respondents' own research capabilities was increased. Collaborators largely attributed these effects – fully or in part – to the collaboration. Further outcomes from the collaboration, in terms of increased scientific productivity, were reported by only a third of the respondents.

The vast majority of collaborators were very satisfied with the CGIAR learning environment. Several reported that the quality of CGIAR research facilities often could not be matched by that in the home institution, which could be an obstacle in some cases to the skills being put to full use. Interestingly, many respondents indicated that they had been able to mobilize new funding for their home institution, and three quarters of those who did indicated that the collaboration was at least partly responsible for it.

When asked about perceived strengths and weaknesses, collaborators suggested a range of elements that had particularly helped mutual CD: "networking and team work with CGIAR scientists", "explicit and implicit opportunities for CD", "transparent communication, trust, information sharing and the international culture", "excellent scientific research skills and high-calibre CGIAR peers", and "mutual friendship and respect". Respondents felt that relevance and effectiveness of collaboration might be improved by directing more effort towards aspects of writing and publication, and gender. Furthermore, collaborators suggested that "networking should include a wider range of partners, including universities and NARS", that "more opportunities for CD should be created", and that "more financial support" would be helpful.

Outside the survey, the evaluation team received anecdotal feedback from its interviews with several African regional organizations that collaboration with CGIAR scientists was generally seen as an opportunity by NARS and university scientists to get involved in high quality international research and well-established scientific networks and thereby promoting broader collaboration.

Collaboration was viewed as having provided mutual benefits. Regarding benefits to CGIAR, the partners estimated that the collaboration had resulted in clear increase for their CGIAR peers in terms of understanding their country's needs and of making their research more relevant to their country. They also felt that CGIAR collaboration had, overall, stimulated scientific publishing. It was felt that CGIAR Centers could enhance effectiveness and sustainability of capacity if they paid greater attention to relevance and

joint outputs. The respondents considered, however, that the collaboration had significantly impacted CGIAR activities in terms of networking (18 percent), capacity building (14 percent) and communication.

Gender in capacity development

Findings on gender in CD are presented in this chapter because information about gender was almost exclusively available for individual CD.

The evaluation team reviewed the extent to which gender was specifically considered in designing, implementing and monitoring of CGIAR CD activities. In strategy formulation, gender was not systematically addressed within Center or CRP CD strategies. Instead, CD was to some extent considered in gender strategies. Also, for example, in planning (PoWBs) and reporting CD was often part of gender reporting. To a large extent CD related to gender was considered to be an internal need.

In its assessment of CD provided for external beneficiaries, data on female participation in individual CD was most readily available because reporting for men and women separately was a requirement in annual reporting. Given that scientific collaboration—the third type of individual CD considered in the evaluation—has generally not been characterized, recorded or documented for its CD purposes, data related to gender in scientific collaboration was likewise not available. Neither was there much information available on the other aspects that the evaluation team explored, the degree to which CD activities were designed gender-sensitively, and coverage of gender issues in CD.

Participation of women in agricultural R&D

Two general gender-related capacity challenges exist in agricultural research and development in developing countries: low average female participation, and capacity (or commitment) to address gender-related issues in agricultural research and extension. The 2012 ASTI global assessment noted “many developing countries (particularly in West Africa, South Asia, and West Asia) still have relatively low levels of female participation in agricultural research and development (R&D) and will need to further integrate gender differences into the formulation of related policies”⁶⁹.

A study in 2014 concerning the program African Women in Agricultural Research and Development across 125 African institutions of agricultural research and higher education found that “fewer than one in four professionals are women and that fewer than one in seven of those holding management positions are women”⁷⁰.

According to an ASTI study, the overall share of female agricultural researchers was higher in the Latin America and Caribbean region (36 percent in 2013) and West Asia and North Africa (34 percent in 2012) than in Sub-Saharan Africa (22 percent in 2011) and South Asia (20 percent in 2011/2012). Differences between countries within regions were large. For example, in Latin America, women were well represented in agricultural research agencies in Venezuela (48 percent), Argentina (44 percent), and Uruguay (40 percent). In contrast, the share of female researchers was low (between 14 and 18 percent) in Bolivia, Honduras, and Panama⁷¹. The evaluation team did not find similar data for female participation in extension, but anecdotal evidence suggests that it is even lower.

Apart from female participation, researchers, extension agents and other stakeholders require a broad

69 Beintema, N., Stads, G.J., Fuglie, K. and Heisey, P. (2012): ASTI Global Assessment of Agricultural R&D Spending, p. 13.

70 Cited in: Brandon et al. (2014): Monitoring and Evaluation of African Women in Agricultural Research and Development (AWARD): An Exemplar of Managing for Impact in Development Evaluation, p. 129.

71 Beintema, N., Stads, G.J., Fuglie, K. and Heisey, P. (2012), Stads, G.J. (2015): Agricultural R&D in West Asia and North Africa: Recent investment and capacity trends; Stads, G.J. (2015): A snapshot of agricultural research investment and capacity in Asia.

range of gender-related capacities to address the many gender-related issues in agriculture⁷². Skills that are required include, for example, data and methods for gender-disaggregated analysis, implications and ways to address gender differences in access, control, and use of land, produce, livestock and other assets, and access of women to financial services and insurance. These topics could be expected to be included also among topics covered in CGIAR's individual CD.

In addition, capacity for gender research needs strengthening, for example on the role of gender in nutrition, gender-equitable value chains, and equitable rural labor markets. Overall, capacities are required for better integrating gender into agricultural research, development and extension, for improving the enabling environment for greater female participation. Gender should also be addressed broadly as an issue of motivation that has important organizational and institutional CD dimensions needed to address gender-equity and organizational culture.

Gender in individual capacity development

The share of women participants in short- and long-term training was tracked by the CGIAR Consortium Office as part of CRPs' annual reporting. Among the indicators, these reports provided data on numbers of men and women who had participated in individual CD. Data for women's participation are shown below for short-term (Table 7) and long-term programs (Table 8) in 2013-2015. The order of CRPs in the tables corresponds with the average proportion of women participants among all individuals trained.

Table 7: Total number and percentage of women participants in short-term training

CRP	2013		2014		2015	
	%	total	%	total	%	total
A4NH	56	90,005	50	347,490	78	117,509
AAS	51	113,796	55	131,000	55	129,000
RTB	31	29,257	71	32,341	53	36,542
HT	43	1,958	40	2,029	46	1,543
CCAFS	35	24,057	48	48,300	46	55,106
FTA	61	6,751	37	6,792	28	49,800
PIM	33	16,471	36	9,449	41	9,346
L&F	27	5,127	26	7,222	53	139,866
WLE	28	8,107	35	14,287	43	13,041
MAIZE	27	50,180	36	28,114	29	39,129
GRISP	27	93,845	25	28,030	40	14,857
DC	34	1,834	35	10,099	22	10,548
DS	19	232,500	24	358,867	24	87,396
WHEAT	18	17,300	21	5,157	21	20,807
GL	10	40,303	18	16,714	12	16,000
AVERAGE	33	48,766	37	69,726	39	49,366

Source: CRP Annual Reports 2013-2015

72 Beintema, N. (2014): Enhancing female participation in agricultural research and development: Rationale and evidence. In Gender in agriculture: Closing the knowledge gap. Part V Toward a gender-sensitive agricultural research, development, and extension system, ed. Agnes R. Quisumbing, Ruth Suseela Meinzen-Dick, Terri L. Raney, André Croppenstedt, Julia A. Behrman, and Amber Peterman. Chapter 16. Pp. 393-409.

A4NH and AAS clearly targeted women in their short-term training. Among the trainees they reported, women consistently accounted for over 50 percent of participants; in 2015 A4NH reported that 78 percent of individuals trained in short-term programs were women. Across most CRPs, the data contain examples of CD events that doubtless were aimed solely at women and women's groups. For example, 2015 was a peak year in L&F reporting, and 53 percent of the participants were women. Women were a relatively small proportion among all trainees in several CRPs with commodity orientation, RTB being an exception. In WHEAT, women consistently accounted for about 20 percent of all trained, and in MAIZE, GRiSP and Dryland Cereals about 30 percent on average over the years. Dryland Systems reported very high numbers of short-term trainees and also reported only about 20 percent women, which may be due to the male dominance among agricultural producers and professionals in countries where Dryland Systems operated. Apart from the numbers reported, there was little information about the nature of the short-term courses or training events to assess whether women attended training targeted to needs specific to them or similar events as men.

The survey of short-term individual CD through showed some differences (with statistical significance) between men and women concerning outcomes: fewer woman respondents than men reported substantial positive changes to their work (39 percent compared to 45 percent average), and their feedback was generally less positive (ranging between 2 and 9 percentage points) concerning a number work-related outcomes.

Table 8: Total number and percentage of women participants in long-term training

CRP	2013		2014		2015	
	%	total	%	total	%	total
A4NH	63	128	59	180	59	341
L&F	47	45	52	104	46	111
RTB	46	91	49	121	48	84
GRiSP	41	404	43	436	46	185
CCAFS	44	385	42	122	44	100
PIM	39	328	35	313	51	143
WHEAT	35	186	45	80	40	98
DS	32	47	60	100	26	82
FTA	40	213	43	323	30	122
MAIZE	35	229	32	267	39	466
WLE	27	197	32	306	44	195
GL	0	3	54	67	32	35
HT	36	72	13	62	34	70
AAS	0	9	33	12	40	135
DC	15	53	24	29	31	117
AVERAGE	33	159	41	168	41	152

Source: CCRP Annual Reports 2013-2015

In long-term programs for academic education support there were also large variations among CRPs and among years, but no such pattern was observed as for short-term training. A4NH reported consistently that more than half of participants in this type of CD were women, but also with L&F, RTB, GRiSP women accounted for nearly 50 percent of the participants. Only a few CRPs reported very low numbers of women graduate trainees, and in some cases low numbers of this type of CD overall.

The survey did not reveal any significant difference between men and women concerning their satisfaction with academic education support, including outcomes from it. Based on the survey feedback, academic education support appears to be highly effective in transmitting knowledge and developing research skills. Respondents also felt that the training had raised awareness of gender and cultural issues.

Given the nature of this type of individual CD, expected to result in academic degree or providing mid-career professional training through fellowship programs, CGIAR's training effort can be considered good regarding its reach to women and subsequently its effect on NARS capacity concerning women employees. However, the evaluation team was not able to find gender-disaggregated data on the effectiveness of CD or its sustainability. Most assessments were limited to assessing the share of female participants, and comparing them with targets. For example, the evaluation of the BecA- ILRI-Hub's ABCF (Africa Biosciences Challenge Fund) Fellowship program was limited to assessing the share of female participants, and comparing them with targets. The evaluation report stated: "the ABCF program has achieved 33 percent female representation with the fellowships and 43% through its annual workshops, exceeding its 30 percent minimum but falling short of the 50 percent target consistent with ILRI gender mainstreaming strategy"⁷³.

Regarding assessments of how effective CD design has been from a gender perspective, the evaluation team identified only isolated assessments. HarvestPlus, for example, researched several alternative approaches for fostering adoption of vitamin-A-enhanced sweet potato in Uganda and Mozambique, and this work yielded important lessons on CD design for increasing the effectiveness and sustainability of CD in specific circumstances; for example, concerning employment of female nutrition extension workers and tailoring messages targeted at male and female members of farming household⁷⁴.

The evaluation team did not find information or analysis about how gender-sensitive design of CD has affected effectiveness or whether CD on gender as a subject has been effective, for example gender education of managers that would have an objective of influencing corporate gender policies. Needs assessments such as the African Network for Agroforestry Education (ANAFE)-sponsored assessment of gender policies in 14 tertiary agricultural education policy institutions in Africa represents a useful starting point for designing such CD interventions⁷⁵.

Clearly, gender-disaggregated information on the degree to which sustained capacity is developed would help to understand underlying issues for low female participation and help programs to go beyond managing female participation through incentives and selection, for example by tailoring content to the needs of women in different circumstances. Programs dedicated to strengthen women's research capacity, such as the AWARD program, may help in understanding this important area better⁷⁶.

Summary

CGIAR's core areas of CD activity, namely providing training through short-term courses and events, and longer-term CD supporting graduate and post-graduate studies, continue. However, compared to the most recent evaluation of individual CD in CGIAR in 2006, the records for short-term individual training

73 Dalberg Global Development Advisors (2014): The BecA-ILRI Hub Africa Biosciences Challenge Fund (ABCF) Capacity Building Evaluation: Final Report.

74 Arimond, M. et al. (2010): Reaching and Engaging End Users (REU) with Orange Fleshed Sweet Potato (OFSP) in East and Southern Africa" and Annex: A Report on Impact.

75 Aissetou, D.Y., Akinngbe, O.M., Alfred, O., Sebastian, C. and Mipro, H. (2015) Assessment of Gender Policy in Selected Tertiary Agricultural Education Institutions in Africa.

76 AWARD (2015): Empowering African Women Scientists through Career-Development Fellowships.; Brandon, P. et al. (2014): Monitoring and Evaluation of African Women in Agricultural Research and Development (AWARD): An Exemplar of Managing for Impact in Development Evaluation.

have increased dramatically. The reported number of individuals trained through short-term programs has increased from fewer than 10 000 per year to over 2.5 million in three years (2013-2015). This appears to be associated with downstream training at the field level. However, from the reporting it was not clear to what extent the training was done in conjunction with program activities or, for example, in support of technology adoption in the field.

The single aggregate numbers masked completely the nature and format of short-term individual CD. It is likely that these events included demonstrations, farming family training or other group events where large numbers of individuals were reached. Yet, the volumes of participants at demonstrations provided locally to farmers, other primary producers or community participants and numbers of agricultural research professionals receiving short-term skills training are in a completely different scale and not comparable.

Regarding farmer training in general, the 2006 evaluation concluded – and the Science Council in its commentary supported this conclusion – that CGIAR did not have a comparative advantage for downstream training, which this evaluation team concurs with. However, the mere numbers did not reveal what the CGIAR Centers' role was, and how or by whom the training was done; whether the training targeted at these very large numbers of individuals was provided directly by CGIAR staff. It was also unclear whether the increase in the field-level training happened at the cost of training research staff. As the purpose remained unclear, the evaluation team could only comment at a general level.

Training through extension activities seems to have been widespread, often involving tens of thousands of farmers and carried out under bilaterally-funded projects. In the CRP evaluations, CGIAR's comparative advantage for downstream CD, including large-scale extension activities funded through bilateral projects, were questioned⁷⁷. Christoplos⁷⁸ strongly cautioned against project-level extension by arguing that CGIAR providing CD support to extension or taking the role of extension was not CGIAR's comparative advantage because it inevitably operated on a small scale without the desired impact. He also implied that targeting "results" could lead to "piecemeal training inputs intended to merely use (rather than strengthen) extension for a specific project".

It is likely that CGIAR's focus on delivering development results may have led to training of end-users to enhance uptake and use of new technologies. This focus has a very different purpose, and by necessity narrower scope, than focus on partners and other intermediaries along the impact pathway for multiplying the investment on their enhanced capacity and subsequently scaling the CGIAR's contribution to development outcomes.

Individual CD targeted for academic education support has remained at a similar level as reported a decade ago. Some of this CD has taken place through dedicated CD programs closely related to the Centers' research areas, and targeting academic studies in specific research areas, such as plant breeding and applied economics. Overall, individual-level CD activities have become embedded in Center projects that have provided the specific focus and addressed concrete capacity requirements. The increased need for multi, inter and trans-disciplinary approaches could be addressed through a CGIAR wide fellowship program that builds on and goes beyond the core competences of individual Centers.

The feedback that the evaluation team received through survey and interviews, that covered primarily agricultural professionals, was overwhelmingly positive. In short-term training, the quality of trainers, high quality of the training and field experience were highlighted as main factors contributing to the positive judgment of the training. A large majority of the respondents also attested to the usefulness of the new knowledge and skills in their work. The less positive experiences seemed to be associated

77 Christoplos, I. (2016).

78 *ibid*

with circumstances following return home. CGIAR's support to academic education was also considered overall very successful.

In addition to the formal short- and long-term programs, scientific collaboration that offers an opportunity for "on-the-job" learning, was considered highly important form of CGIAR's individual CD. While evidence showed that this type of CD involves large numbers of collaborators and accounts for considerable investment in mentoring by CGIAR staff, there was hardly any systematic data or documentation of CD through collaboration. CD has been enhanced reportedly through technical capacities, facilitation of platforms, networks and dialogues, exchange of information and knowledge management and sharing, and joint work in projects, including joint publishing, for example. This type of CD was commonly considered as a two-way process between CGIAR staff and their non-CGIAR counterparts.

The evaluation team found that CGIAR is highly regarded as provider of individual CD among agricultural researchers and other professionals in terms of the relevance and quality of the training and supervision and the use of the capacity gained. In professional collaboration, participants appreciated coaching and mentoring provided, roles and responsibilities between the collaborating institutions, and mutual understanding of each other's institutional settings, which all contributed to effectiveness. There seems to be scope for improvement in maintaining contact with people who have received CD, for which scientific collaboration may provide some opportunity.

There is limited evidence of the longer-term effects of individual CD. Longer-term effects are generated, for example, by former trainees being promoted into key leadership positions. Country case studies of the 2006 CD evaluation found that one of the most significant outcomes of CGIAR training had been the prominence of alumni in leadership positions in NARS⁷⁹. CIMMYT reported, referring to a study by the Chinese Academy of Agriculture Science (CAAS), that many alumni of its wheat training and visiting scientist programs since the 1970s now held important positions in China's wheat research system⁸⁰. The review of IWMI's CD activities stated that many key posts within government ministries in Pakistan, Nepal, Ethiopia and elsewhere were held by individuals who had worked at IWMI at some point in the past⁸¹. The evaluation team collected anecdotal evidence of former CGIAR trainees now occupying NARS leadership positions. Beyond the one-off cases and anecdotal evidence, there is little systematic evidence on the longer-term effects of CGIAR's CD targeted at individuals. This should, however, not lead to underestimation of CD at this level, particularly given the high level of participant satisfaction established in this evaluation, reconfirming findings from earlier studies.

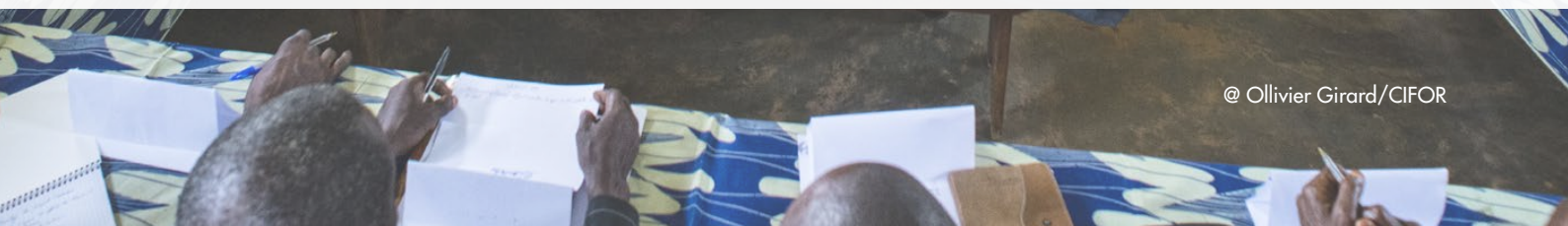
79 CGIAR Science Council (2006).

80 CIMMYT (2014): 2014 Annual Report: Turning Research Into Impact, p. 12.

81 Emmens, B. and Green, A. (2014).



4 Capacity development at organizational and institutional levels



This chapter describes and analyses CGIAR CD activities at organizational and institutional levels. It explores the extent to which CGIAR has addressed organizational and institutional capacity needs and if CD in these areas has been relevant, effective and sufficient. “Organizational capacity” refers to internal policies, arrangements, procedures, frameworks and culture that characterize a high-performing organization delivering according its mandate, and which enable individual capacities to thrive and goals to be achieved. “Institutional capacity” is the collective ability of a network of entities, together with supporting rules and policies, to bring existing or new products, processes, and forms of organization into social and economic use⁸².

These levels are interconnected with CD at the individual level, and capacities at any one level influence those at other levels. For example, individual capacity of staff contributes to organizational capacity, and both contribute to institutional capacity. Conversely, risk-averse organizational culture (organizational capacity) can hinder development of individual capacities. It was therefore to be expected that many CGIAR CD activities combine aspects from the various levels. The presentation here of organizational and institutional CD separately illustrates the different purposes rather than reports according to strict categories.

Many forms of CD at the organizational or institutional level lack commonly accepted typology, are not systematically reported, and are therefore difficult to characterize and quantify. The findings in this chapter are based primarily on the evaluation team’s review of CRP documents, case studies on institutional CD, evaluations done by two Centers on their CD, and interviews.

82 Tropical Agricultural Platform (2016): Common Framework on Capacity Development for Agricultural Innovation Systems: Conceptual Background, p. xii, 24.

Context

The context in which the evaluation team assessed CD at organizational and institutional levels was informed by an analysis of developing country needs (see Annex C). The key findings from the analyses were the following.

- › Capacity for agricultural research in developing countries faces a number of challenges. Among the most pressing are: insufficient investments in agricultural research and high funding volatility; difficulties to recruit and retain sufficient numbers and quality of researchers, high turn-overs and insufficient succession planning; and changing structural and organizational requirements for national and regional systems. Agricultural extension also experiences structural challenges and lacks sufficient numbers of qualified staff.
- › Countries and actors involved in agricultural research and development vary considerably in terms of their organizational structure, capacity, and policies, which results in different capacity needs. There are also differences among regions. Consequently, CD strategies and approaches need to be adjusted, and gender balance and equity addressed. However, information on capacity needs specific to developing countries remains limited.
- › The ASTI initiative represents a major undertaking by CGIAR to provide data on agricultural research systems across the developing world. These data, available for 40 countries in detail, are particularly valuable to study trends in organizational capacity and investments in agricultural research and development.

Capacity development at organizational level

Since the closure of ISNAR in 2004, CGIAR has not had a similar focus on or accountability for developing organizational capacity, although several CGIAR projects and programs have had elements of organizational CD in them. These have often been interlinked with individual CD and some of ISNAR's work has continued. ISNAR was established in the second half of 1970s with the objective of strengthening NARS in developing countries, thereby helping to address one of the most important constraints to agricultural development. With the closure of ISNAR in 2004, its governance and some programs were transferred to IFPRI in Ethiopia. Research and CD continued in global programs on agricultural science policy and organizational change for innovation systems, and a global program with focus on Africa on organization and management of agricultural research, which also included a training unit⁸³. The Intermediary Biotechnology Service, to assist NARS with managing their biotechnology programs, was one of ISNAR's last initiatives. After transfer, the ISNAR Division of IFPRI was externally reviewed, with positive results, and its relevance, importance and demand, particularly in Africa, were highlighted. The work has since evolved into IFPRI's capacity strengthening program that has human, organizational and policy system CD objectives. In summary, ASTI, initiated by ISNAR, is now an IFPRI-led program. However, the 2012 history of CGIAR considers that "the long-term effect of the CGIAR's decision to close ISNAR has yet to be studied"⁸⁴.

Several CGIAR Centers have forged strong and collaborative CD partnerships with specific NARS actors over several decades. These partnerships transcend individual projects and programs, and strongly depend on mutual interests and trust. The following are a few examples, although there is no documentation on the extent to which CD has been explicitly included or achieved.

- › CIAT closely collaborated for more than 50 years with CORPOICA, Colombia's national research organization. CORPOICA and CIAT collaborated scientifically, shared field labs, and were both involved in a science park. CIAT also sponsors field training of CORPOICA staff and supports academic education.

83 Von Braun, J. (2004): the ISNAR Program at IFPRI: Strategy, Priorities, Implementation. Presentation at Exco. http://www.cgiar.org/www-archive/www.cgiar.org/exco/exco6/exco6_isnar-ifpri_pres.pdf

84 Ozgediz, S. (2012): The CGIAR at 40. Institutional evolution of the World's premier agricultural research network, p. 60.

- › INIAP, Ecuador’s National Institute of Agricultural Research, has had strong collaboration for CD with CIP, CIAT and Bioversity International after it was established in 1959, and more recently also with CIMMYT, ICARDA and IRRI. CD activities covered classroom instructions, mentoring, exchange visits, workshops, joint research, advisory services and joint initiatives, as for example CONPAPA, a potato farmers’ seed production consortium of 300 smallholders in Ecuador organized collaboratively between INIAP and CIP.
- › CIP has collaborated for more than 35 years with Chinese universities and the Chinese Academy of Agricultural Sciences and national organizations to build research capacity and improve potato and sweet-potato farming. CIP has hosted university degree programs, visiting scholars and conducted short-term training for research personnel and field training for extension agents, thereby helping China to build the capacity needed to improve root and tuber production and utilization⁸⁵. In 2011 CIP and China signed an agreement for the CIP-China Center for Africa and the Pacific within which increased organizational CD is expected.
- › The 2015 impact evaluation of IFPRI’s CD found the Center’s country programs to represent effective ways to deliver CD, based on assessments in Bangladesh, China, Ethiopia, Ghana, India, Malawi and Mozambique. Country Strategy Support Programs (Country SSPs) were based on close cooperation with governmental and non-governmental research and policy partners, and included out-posting of staff, for example directly into the Ministry of Agriculture. The study considered IFPRI’s country programs a conduit for effective CD because of synergies between operations (research) and CD activities, and because local presence of IFPRI staff was associated with significantly increased effectiveness of CD activities, compared to programs without out posted staff⁸⁶.

CGIAR has also provided analytical tools and capacity to use them to national governments, programs and communities, which has been an important form of enhancing organizational capacity. While policy advice and decision-making support activities usually process information so that it can be used directly by targeted actors, activities of this kind focused on introducing new tools and providing the capacity to use them. These activities can be supply-oriented, i.e. providing public good-type capacity for broader application rather than responding to predefined specific needs. Examples identified by the evaluation team include:

- › a set of 20 resilience indicators, supported by Bioversity International, to help measure the capacity of a community’s landscapes to adapt to change while maintaining biodiversity;
- › an initiative led by CIP to understand how climate change affects pests, through which national programs in several East African countries gained strength in pest surveillance and capacity to elaborate and act upon pest risk analysis information;
- › flood forecasting and drought monitoring tools developed by IWMI and its partners in Nigeria assisted government in agricultural production and helping small farmers to engage in dry-season agriculture profitably;
- › IRRI developed remote sensing technology and monitoring capacity for rice-growing areas in several Asian countries and established the Philippine Rice Information System.

IFPRI’s CMAAE program, presented in Chapter 3 as an example of academic education support, represents a large, programmatic scale initiative of organizational CD. While the program addresses graduate education, it also aims to strengthen the teaching and research capacity in participating universities and strengthening their research networks. A 2014 evaluation of IFPRI’s role in establishing the network reported “IFPRI’s initiative to facilitate the start of the CMAAE degree program can be considered a clear contribution to institutional development, with favorable outputs and outcomes. In addition, IFPRI’s leading role provided a gateway to funding that no East African university would have

85 CIP (2015): Annual Report 2015.

86 Kuyvenhoven, A. (2014).

been able to secure on its own. With the creation of a regional degree program, resources were pooled, a minimum scale needed to achieve the desired quality was created, and diversity was served”⁸⁷. From the evaluation team’s own review, an important factor contributing to its relevance was the detailed consultative and collaborative planning exercise prior to its inception that was led and driven by African counterparts. CMAAE was “a successful program in terms of its outputs and first outcomes”⁸⁸.

Another, albeit anecdotal, success story regarding support for higher education is the rebuilding of the forestry research cadre of Congo. The number of public researchers with master-level forestry education had shrunk to only six persons in 2005 due to underfunding and periods of civil war. At the same time, Congo represents the country with the world’s second-largest area of contiguous tropical forests. Public forestry research capacity was rebuilt through CIFOR’s long-term CD program with the Faculty of Sciences at the University of Kisangani that by 2015 had resulted in 77 masters and 9 PhD graduates and continues to operate⁸⁹.

Capacity development at institutional level

CGIAR has engaged in developing and enhancing institutional capacity through many different ways that the evaluation team explored, particularly through its case studies but also drawing from other evaluative studies. The evaluation team identified five groups of CD activities that have focused at developing institutional capacity, and are discussed in detail:

- > innovation platforms;
- > policy advice and decision-making support;
- > establishment, facilitation and support of cooperative regional networks;
- > collaborative programs;
- > establishment of system actors and infrastructure;
- > developing capacity for delivery

Innovation platforms

At the time of this evaluation, innovation platforms represents a widely-used approach to institutional-level CD in CGIAR that has been applied by several Centers and CRPs. The Tropical Agricultural Platform (TAP) defined innovation platforms as “A group of individuals (who often represent organizations) with varying backgrounds and interests – farmers, agricultural input suppliers, traders, food processors, researchers, government officials, etc. – that come together to develop a common vision, to identify solutions to common problems or to achieve common goals.”⁹⁰ They were first implemented systematically in CGIAR by the Sub-Saharan Africa Challenge Program (SSA-CP) – launched in 2005 and closed in 2015. SSA-CP was an atypical CGIAR program because of its focus on testing the effectiveness of Integrated Agricultural Research for Development (IAR4D). The SSA-CP represented a large-scale attempt to pilot and rigorously test the concept of innovation platforms in several African pilot sites. It was an experiment in institutional learning and change. The SSA-CP was relevant because it aimed at strengthening local and regional AR4D systems through facilitating and supporting innovation platforms for addressing shared issues of multiple stakeholders. It was also relevant on a more fundamental level because it aimed at providing proof of concept for IAR4D as a viable alternative to, for example, long-established technology transfer paradigms. The mechanics of innovation platforms in IAR4D included bringing stakeholders around the table, analyzing

87 *ibid.*

88 *ibid.*

89 Kahindo, J-M. (2015): Curricula Reforms at the University of Kisangani as a Foundation for Capacity Building in a New DRC Context. Conference Abstract (World Forestry Congress - Durban, 2015).

90 Tropical Agricultural Platform (2016), p. xii.

the problems faced by farmers in improving their livelihoods, prioritizing the problems, looking for possible solutions, implementing them, monitoring the implementation and dealing with problems arising over the course of time or moving to the next set of problems. However, successful implementation of the innovation platforms was challenging because of the inherent complexity of the concept, as well as that of IAR4D, expected to achieve an interlinked set of ambitious outcomes⁹¹.

From a capacity viewpoint, innovation platforms represent pursuit of capacity at institutional level by enabling diverse stakeholders to address common challenges and harness mutual benefits more effectively and efficiently than direct technology transfer, which typically involves only individual CD, if anything. Conversely, a successful introduction of innovation platforms may require an intensive CD process for “fostering the development of social networks, changes in attitudes, and the acquisition of social as well as technical knowledge and skills”, as was documented for the Participatory Market Chain Approach that required diverse stakeholders, including research and development professionals, farmers, market agents and policy makers to work together⁹².

At the time of its evaluation in 2011, SSA-CP had facilitated 36 innovation platforms and its outputs had reached large numbers of farmers and involved training and awareness-raising. While some results from the innovation platforms have been documented in terms of productivity and income generation, the sustainability of the institutional learning and capacity has not been assessed. However, the CGIAR reform led to the phasing out of SSA-CP, transfer of some of its work to other CRPs, particularly Humidtropics, which, in turn ended in 2016 with some of its work continuing in the second phase of RTB. From the review of related evaluations and research publications⁹³ it was not possible for the evaluation team to confirm the extent to which the original innovation platforms are still operational, nor the degree to which innovation platforms represent an effective and sustainable strengthening of institutional capacities. However, in annual reporting, establishing innovation platforms is reported as part of CD, and since 2012 several CRPs have established innovation platforms for targeted agro-ecosystems. MAIZE and WHEAT have been particularly active (see Table 9).

Table 9: Number of innovation platforms established by CRPs over three years

CRP	2013		2014		2015	
	Target	Actual	Target	Actual	Target	Actual
AAS		5	15	5	5	32
CCAFS	5	3	4	10	10	39
DS	15	20	24	45	26	32
FTA	2	33	25	20	20	17
HT	15	20	45	112	40	74
MAIZE	75	87	80	132	80	168
WHEAT	43	45	50	50	45	101
WLE		22	29	24	30	41

Source: CRP Annual reports.

91 CGIAR ISPC (2011): Report of the Second External Review of the Sub-Saharan Africa Challenge Program (SSA-CP), p.8.

92 Horton, D., Akello, B., Aliguma, L., Bernet, T., Devaux, A., Lemaga, B., Magala, D., Mayanja, S., Sekitto, I., Thiele, G. and Velasco, C. (2010), Developing capacity for agricultural market chain innovation: Experience with the ‘PMCA’ in Uganda. *J. Int. Dev.*, 22: 367–389.

93 *ibid*; CGIAR Science Council (2007) Sub-Saharan Africa Challenge Program External Review; Pamuk, H., Bulte, E. and Adekunle, A. (2014): Do decentralized innovation systems promote agricultural technology adoption? Experimental evidence from Africa; Humidtropics (2016). CRP - Commissioned External Evaluation (CCEE) of Humidtropics, a CGIAR Research Program on Integrated Systems for the Humid Tropics.

Interpretation regarding multi-stakeholder innovation platforms differed among CRPs, with some listing only formally organized, longer-term platforms and others also one-off multi-stakeholder workshops. From interactions with CD focal points in Centers and CRPs, and the Consortium Office, the evaluation team concluded that there has been little follow-up or verification of reported figures. In Centers, several interviewees mentioned that participant lists were kept by lead researchers but were not available centrally. Again, no systematic monitoring appears to be in place for any type of CD at the organization and system-level, apart from reporting on the number of innovation platforms as part of CRP performance reporting. For the evaluation team, the only sources of information on this level were CRP and Center reports, which however often only provided anecdotal evidence as well as discussion paper by Staiger et al⁹⁴ on lessons learned.

While much of the recent focus at the level of institutional CD and developing capacity for going to scale has been on facilitating innovation platforms (involving platform support capacity and capacity for facilitating multi-stakeholder processes) the degree to which participation in innovation platforms changes behaviors and capacities within NARS remains unexplored.

Policy advice and decision-making support

CGIAR's provision of policy advice has included elements of organizational and institutional CD. Its programs have included CD elements, in addition to advice. Of these programs, ASTI has operated for over 30 years (moving from ISNAR to IFPRI) and while not designed to develop capacity as such, it has collected standardized information on national capacities for agricultural research and published reviews on capacity status, issues and needs. It has facilitated and strengthened analysis and informed decision-making in AR4D organizations and institutions. A 2010 impact evaluation⁹⁵ described ASTI as the most comprehensive source of agricultural research statistics for low and middle-income countries. The evaluation also found its data to be critical for analysing contributions of agricultural science and technology, for assessing research system funding adequacy and staffing, and for allocating research resources within systems. The study found evidence of wide use of ASTI information by national, regional, and international audiences for assessing the levels and trends in research funding and capacity.

Other programs have targeted groups of countries in important policy issues. CCAFS's work with the African Group of Negotiators to facilitate a common position on agriculture within the climate change negotiation processes and IWMI's support to the African Ministers' Council on Water to develop policies on land acquisition have had strong CD elements. There are also several examples of Centers/CRPs supporting national governments by providing advice and capacity; for example IRRI's support to the development of the Myanmar Rice Sector Development Strategy; CIFOR's assistance in the Peruvian forestry sector concerning trade, and its community-based Commercial Forestry Project in Indonesia; IFPRI's support to the Pakistan and Nigeria Strategy Support Programs; and CCAFS work with national governments, for example in Mongolia, Vietnam, Tanzania, and Uganda, to help prepare submissions to the UN Framework Convention on Climate Change.

Establishment, facilitation and support of cooperative regional networks

CD activities through networks have connected similar actors in different countries and facilitated and supported their interactions. Their primary aim is to develop institutional capacity. Compared with some examples of CGIAR's collaborative programs (next section), networks have had a broad funding base. The evaluation team assessed two regional networks as its case studies (presented below): 1. The Pan-

94 Staiger, S. et al (2013).

95 Norton, G.W. (2011): Impact Assessment of the IFPRI Agricultural Science and Technology Indicators (ASTI) Project.

Africa Bean Research Alliance (PABRA) facilitated by CIAT, which connects three regional African bean networks with a focus on synergies in bean production; and 2. The Asian Maize Biotechnology Network (AMBIONET). There have been several other networks that have also played an institutional CD role covering geographically and organizationally wide groups of stakeholders. These include the Global Musa Genetic Resources Network, (MusaNet) facilitated by Bioversity International; GRISP's Rice Sector Development Hub Network launched in 2012; and the LAC-Biosafety network, coordinated by CIAT, bringing together 66 institutions in Brazil, Colombia, Costa Rica and Peru for joint efforts centering on cassava, cotton, maize, potato and rice; and the IFPRI-supported Regional Strategic Analysis and Knowledge Support Systems (ReSAKSS) program, which is an information network to generate strategic analysis, knowledge management and CD to support policy analysis. These networks represent CGIAR CD in its core areas of research and most have focused on genetic improvement (ReSAKSS being an exception). In the past, regional network approaches such as PABRA have represented effective ways to blend and interface CGIAR and NARS capacity along the genetic improvement impact pathway, and to allow CGIAR to facilitate cross-country exchange of knowledge and breeding material, and to support national breeding.

PABRA

In many ways PABRA represents a good example of an effective network approach to strengthening plant breeding in developing countries. In 2006, an independent joint donor evaluation found PABRA to be “an effective and experienced, well-designed and well-implemented program with obvious strengths ... and ... substantial success in building competences and capacities at academic and scientific level, as well as at the level of development professionals ... and ... successful networking and collaboration with various partners”, promoting “transformation and further development of results of scientific work to an application-oriented level”, with “a lean and effective management system.” Its relevance and service quality were highlighted and found to be continuously high⁹⁶. In addition, CIAT's continued support to the alliance has been of critical importance, representing a clear comparative advantage. A recent evaluation of CIAT's role in PABRA found that “CIAT's role as a supplier of germplasm, breeding expertise and technical backstopping goes unquestioned, but arguably its most important role is as a catalyst – the funds and resources it attracts stimulate additional support for national programs that they might not otherwise have access to”⁹⁷. CIAT's role was widely appreciated among member organizations and stakeholders.

PABRA's partners are many and very diverse⁹⁸ and the alliance “represents a model for how a continent-wide crop network can function for the benefit of smallholder farmers”⁹⁹. In interviews, PABRA's leadership stressed the importance of adapting to the different approaches and needs of participating networks and NARS, allowing the alliance a self-governed evolution to adjust to needs better. The 2015 review said that “the model represented by PABRA derives from a long evolution and could not be duplicated rapidly for another crop or situation” because PABRA had got to where it was through continuous adaptive management¹⁰⁰. That evaluation reported that CIAT had made substantial contributions to individual-level CD, and being highly respected in Africa for its work on beans, CIAT had been capable of significant leverage regarding funding and support¹⁰¹. However, PABRA was “unlikely to be sustainable without the contributions of CIAT” because network equity would become challenged, CIAT

96 Brunold, Dengu, and Jenny (2006): The Pan-Africa Bean Research Alliance (PABRA): Joint External Evaluation.

97 Robinson, J. (2015): The Role of CIAT in the Pan-Africa Bean Research Alliance.

98 Brunold, Dengu, and Jenny (2006), p. vi.

99 Robinson, J. (2015), p. 6.

100 Ibid.

101 Ibid.

ensuring that weaker network members were not overlooked.

Regional network approaches such as PABRA have represented effective ways to blend and interface CGIAR and NARS capacity and to allow CGIAR to facilitate cross-country exchange of knowledge and breeding material and to support national breeding efforts. In Africa, an important challenge is that donors appear to be moving away from funding such networks, and PABRA is one of few such projects remaining.

AMBIONET

The Asian Maize Biotechnology Network (AMBIONET) operated from 1998 to 2005. While this case study was about an historic program, it allowed some observation of sustainability of capacity. AMBIONET was evaluated in 2006. The evaluation found that the network filled a critical gap after a predecessor program supporting modern maize breeding was terminated, and for which CIMMYT had a clear comparative advantage based on its experience with maize breeding and its staff capacity¹⁰².

AMBIONET clearly increased maize research capacity in participating countries, although the impact was not quantifiable. Outcomes identified were: increased human capacity and funding for modern maize breeding and a shift of research focus from basic to applied, and towards traits conducive for modern breeding. In terms of development outcomes, no attribution was made but economic value was significant¹⁰³.

The evaluation team found some indications that the synergies created by AMBIONET continued to be harnessed after it ended. Several national partner institutions took responsibility to continue research and CD initiated under the network. With the involvement of key NARS scientists in the network it was thought likely to have continued positive impacts in scaling up maize biotechnology programs in those countries. Interviewees felt that, while difficult to quantify, collaboration among former network members had continued, albeit mostly on a bilateral and needs basis. The director of CIMMYT's global maize program indicated that AMBIONET had led to strong government buy-in, particularly in China and India, with required policy support, finance, and funding for scholarship programs. In India, strong support from the Director General of the Indian Council of Agricultural Research was understood to have led to the establishment of the most successful laboratory in the country, the School of Molecular Excellence.

RENEWAL

Facilitated by IFPRI, RENEWAL is a regional network-of-networks. Currently active in Kenya, Malawi, South Africa, Uganda, and Zambia, RENEWAL comprises national networks of food- and nutrition-relevant organizations (public, private, and nongovernmental) together with partners in AIDS and public health. RENEWAL aims to enhance understanding of the worsening interactions between HIV/AIDS and food and nutrition security and to facilitate a comprehensive response to these interactions.

According to an impact assessment of RENEWAL, this network has "a direct, positive influence on national capacity to address the critical gaps in understanding the links between HIV/AIDS, nutrition, and food security, in developing ways to respond to these challenges, and in national capacity to respond"¹⁰⁴. The assessment concluded that national research priorities needed to be adequately balanced with research aimed at filling global information gaps and found that in the program's last phase the balance had tipped too much towards the latter, leaving national advisory panel members with little influence on determining the research agenda and a sense of not being valued. This resulted in less opportunity

102 Pray, C. (2006): The Asian Maize Biotechnology Network (AMBIONET): A model for strengthening national agricultural research systems.

103 Ibid.

104 Frankenberger, T. and Nelson, S. (2011): Ex-Post Impact Assessment Review of the Regional Network on Aids, Livelihoods, and Food Security (RENEWAL). IFPRI.

for influencing policy as national participation dwindled and research was considered not to correspond to national priorities. Furthermore, the review stated: “To complete the research-policy-action loop, RENEWAL needed to partner with a different set of institutions that were less research-focused and more focused on policy outcomes”¹⁰⁵. The review also recommended raising funds for planning and implementing a sustainable transition in each RENEWAL country that would preserve network functionality on the national level.

Collaborative programs

Several CGIAR programs, for example SSA-CP (mentioned above) and GCP included CD at different levels as integral components of their mandate. GCP was established as one of five CGIAR Challenge Programs designed to address “complex issues of overwhelming global and/or regional significance”¹⁰⁶ and its focus on strengthening modern breeding capacity in developing countries was highly relevant to needs¹⁰⁷.

GCP has successfully strengthened capacity of modern plant breeding approaches in developing countries (see also AMBIONET). GCP’s final review reported very positive stakeholder and participant feedback of its CD activities over its decade-long lifetime and also endorsed the program’s investments in research infrastructure to support NARS-led phenotyping sites¹⁰⁸.

GCP represents an instructive case because the program proactively planned for and managed its sunset. It developed a transition strategy to transfer ongoing activities into CRPs and continued a principal thrust of its work, the Integrated Breeding Platform, offering system-level breeding capacity (access to a breeding management system, breeding services, training and support) to breeders in developing countries. GCP’s final review observed that “the development of effective and synergistic research partnerships has been at the heart of GCP’s research strategy throughout its 10-year history”, and found the program’s approach to partnerships to be exemplary because of the way it reflected equality and respect for NARS. GCP program staff shared this view and considered the partner network with its “unique collaborative GCP spirit” to represent one of the program’s most important achievements. The review also expressed the opinion that the network of research partnerships established under GCP would persist beyond the program and could play a critical role in future integrated breeding¹⁰⁹.

Development and maintenance of system actors and infrastructure

Some CD interventions provided institutional-level capacity in a very direct and tangible way, by establishing and supporting new actors and collaborative platforms. While these also include networks, they are presented here as examples because of their characteristics. For example, two regional higher education networks in Africa and Southeast Asia, ANAFE¹¹⁰ and SEANAFE (Southeast Asian Network for Agroforestry Education), became independent legal entities and then constituted agricultural innovation system actors in those regions. Two program siblings were initiated by ICRAF to address highly relevant CD needs by facilitating exchange of ideas and sharing of experiences and curricula for teaching of agroforestry at university. With their sharp thematic focus on regional network approaches, they represented a unique type of system-level capacity.

105 Ibid.

106 CGIAR (2007): The Charter of the CGIAR System, p. 21.

107 CGIAR Science Council (2008) Report of the First External Review of the Generation Challenge Program.; CGIAR-IEA (2014). Final External Review of the Generation Challenge Programme.

108 Ibid.

109 Ibid.

110 The network was previously called “African Network for Agroforestry Education”, hence the acronym ANAFE.

ANAFE, in its last comprehensive evaluation in 2007 (13 years after the network had been launched), was reported as having achieved “a great deal” and produced positive and sustainable impacts through successfully introducing agroforestry at its (then) 127 member universities and colleges. The review highlighted that grassroots ownership had been achieved through the creation of national training teams. Overall, ANAFE members showed considerable enthusiasm for sustaining the work¹¹¹. Subsequently the network continued to grow and in 2016 encompassed 140 universities and technical colleges in Africa. From its review of ANAFE annual reports and other assessments¹¹², and through interviews with ANAFE stakeholders, the evaluation team determined that the network had continued to be productive in terms of i) participatory curricula review and development, ii) postgraduate research fellowship programs, iii) CD of lecturers and trainers, and iv) collaboratively developed learning materials agroforestry, forestry, agribusiness and risk management.

ANAFE’s Asian counterpart, SEANAFE was established in 1999, and in 2016 it had 82 member institutions in five country networks in Indonesia, Laos, Philippines, Thailand and Vietnam. SEANAFE stakeholders interviewed by the evaluation team felt the network had made substantial and effective contributions to strengthening agroforestry teaching and research capacity in participating countries. An earlier evaluation noted a slow start but good overall progress in 2004¹¹³, and well-functioning country networks in all but one country in 2008¹¹⁴. Also in 2008, an impact assessment provided more detail on the networks’ variable levels of impact on capacity for agroforestry higher education and research at 15 member institutions¹¹⁵.

The evaluation team drew two lessons from its review of ANAFE and SEANAFE that can be generalized to other programs. Both depended to a large degree on funding from a single donor (the Swedish International Development Cooperation Agency, SIDA) and both experienced financial difficulties when funding ended. In the case of ANAFE, a fee model was introduced in 2007 but could only cover a small share of overall costs. ANAFE eventually managed to diversify its donor base¹¹⁶, but all stakeholders interviewed by the evaluation team considered financial sustainability of ANAFE to be a major concern. Possibly related to funding pressures, the network diluted its sharp focus on agroforestry and expanded into offering training on agribusiness, for example on developing bee and charcoal business activities. While responding to market demand, this may have reduced comparative advantage and increased competition for ANAFE. SEANAFE, on the other hand, failed to diversify its funding base, and since SIDA funding ended in 2009, regional network activities essentially ceased. The network fully segmented into its national networks, some of which could attract grants, and which operated at different levels of effectiveness. There were efforts to organize biannual regional meetings (e.g. in 2016), but these were also under funding pressure. The team concludes that, while the phasing out of primary donor support was announced and planned for years ahead of time, transitioning into self-sustained entities remained a challenge for both networks.

ICRAF played a critically important role in getting both networks started. Regional secretariats were hosted at ICRAF in Nairobi (ANAFE) and Bogor (SEANAFE), and ICRAF lent staff, infrastructure and administrative hosting support. Also after transforming into independent legal entities, former and present ANAFE secretariat staff felt that continued proximity to ICRAF, for example in terms of joint

111 Fones-Sundell, M. and Teklehaimanot, Z. (2006): Mobilizing Agroforestry Capacity for Development: Final Evaluation of The African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE) and Zambian Agroforestry Project (ZAP).

112 African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE) (2015) ANAFE: The Strategy 2016-2020; Chakeredza, S., Yaye, A., and Kaabunga, E. (2015): Joint Impact Assessment of CTA’s Support to ANAFE (2003-2013); Svensson and Salih, “African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE): System-Based Audit.”

113 Tengnäs, Bhattarai, and Wasrin, “Integrating Natural Resource Management Capacity in Southeast Asia.”

114 Tengnäs, Ghani, and Hendrayanto, “Sida Evaluation 2008:04: The Southeast Asian Network for Agroforestry Education (SEANAFE), Phase II.”

115 Rudebjer et al., “Impact of the Southeast Asian Network or Agroforestry Education (SEANAFE) on Agroforestry Education Capacity.”

116 Svensson, A. and Salih, M.: African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE): System-Based Audit.

fund raising, would be beneficial. SEANAFE’s secretariat moved to the Philippines, but without funding the former regional facilitation unit at ICRAF’s campus in Indonesia continued as a reference contact. In both cases, according to interviewed stakeholders, initial ICRAF support was crucially important. Also in both cases, spinning off and detaching from programs initiated by a CGIAR Center seemed to have been difficult.

The evaluation team also reviewed a different case of capacity through a new infrastructure, the Biosciences Eastern and Central Africa (BecA) established in 2002 by the African Union’s New Partnership for Africa’s Development (AU NEPAD) and ILRI. The BecA-ILRI Hub offers bioscience labs, infrastructure, graduate education and practice, and professional training. Thus institutional capacity was directly set up at the start. The evaluation team found that BecA represented highly relevant institutional capacity for agricultural research in Africa, being well integrated with continental frameworks, and with a significant comparative advantage. The team considered its world-class biosciences facilities and its research and capacity building activities to be unique in the region. A CGIAR-commissioned study reported that the Hub’s ABCF Fellowship program was relevant and superior to comparable programs¹¹⁷.

The BecA-ILRI Hub, in the evaluation team’s own review, was considered to have been effective in strengthening individual capacities in a variety of ways: through research fellowships, assistance in securing funding, advocacy and technical advisory support. At the organizational level, the hub’s returning alumni applied acquired research skills and secured grants and funding for their home research institutes or universities. Other support at this level was in securing funding for CD, establishing connections to networks, and to technical suppliers and advisers. The Hub also catalyzed the creation of communities of practice for joint/collaborative research. The 2014 evaluation of the ABCF Fellowship program revealed very positive stakeholder feedback on relevance and effectiveness, also vis-à-vis comparable programs in Africa. It also reported significant reach into more than 70 NARS. When provided, additional support to secure funding, advocacy and technical advice was highly valuable in driving institutional growth and development. Financial sustainability of the ABCF program was however “a core challenge [...] particularly in the context of scale up and growth”.

The 2014 evaluation was concerned with the Hub’s operational sustainability because it depended significantly on just three individuals for management and leadership, and its ability to attract and retain high quality staff researchers and scientists. The evaluation team made similar observations regarding leadership in PABRA, and in IWMI’s participation in the programs of the Resource Centres on Urban Agriculture and Food Security Foundation.

There are some other examples of institutional CD through new infrastructure; for example, the Biopacific Park, established in 2011 at the CIAT campus in Colombia through CIAT’s initiative, which is focused on knowledge-oriented development of competitive enterprises and collaboration among universities, private sector, research and technology development organizations; and the Rural Resource Centers, training and demonstration hubs established by ICRAF and managed by grassroots organizations that allow farmers to receive technical guidance and services tailored to their needs.

Developing capacity for delivery

Apart from the areas of activity discussed above, institutional capacity has also been developed to support CGIAR delivery. One example of that is AfricaRice, which Lynam described as balancing building capacity with adapting the research pathway to existing capacity¹¹⁸. Through its rice sector Task Forces (currently six: breeding, agronomy, post-harvest, gender, policy and mechanization), AfricaRice has facilitated

117 Dalberg Global Development Advisors (2014).

118 Lynam, J. (2016).

regular annual meetings among all participating countries to enhance capacity in planning, technical matters and delivery implementation. According to the GRiSP evaluation, working with weaker NARS will require strong technical and financial backstopping from AfricaRice for many years¹¹⁹. A recent study on delivery in CGIAR gave a favourable account of the Stress-Tolerant Rice in Africa and South Asia (STRASA) project where both technical capacity and direct financial assistance were provided by AfricaRice in Sub-Saharan Africa and IRRI in South-Asia, particularly in countries where delivery was difficult due to lack of capacity and when the delivery systems and coordination across the public sector, seed companies, farmers and NGO partners were weak¹²⁰. AfricaRice collaboration with regional organizations for building up and scaling dissemination capacity was also noted.

Summary

Since the closure of ISNAR in 2004, CGIAR has not had a similar focus on or accountability for developing organizational and institutional capacity similarly to ISNAR's institutional mandate to strengthen national agricultural research in developing countries. IFPRI's ASTI initiative continues some earlier efforts of ISNAR by compiling, processing and publicizing data on investments and capacity in agricultural research and development at national, regional, and global levels, and thus contributes importantly to analysis and decision-making concerning investment and capacity. Several CGIAR projects and programs have had elements of organizational CD in them. Some programs of large scale, for example for academic education, are dedicated to CD, and, while the education targets individuals, these programs have a strong organizational and institutional focus.

Several CGIAR Centers have forged strong and collaborative CD partnerships with specific NARS actors over several decades. These partnerships transcend individual projects and programs, and strongly depend on mutual interests and trust. CD has taken place through scientific collaboration, shared field laboratories, mentoring, and many kinds of joint initiatives. CGIAR Centers have in these interactions strengthened capacity in their core areas of research, as exemplified by CIP's collaboration with Chinese academic institutions focusing on root and tuber crop research, production and use. CGIAR has provided analytical tools and capacity to use them to national governments, programs and communities, which has been an important form of enhancing organizational capacity. However, it was also noted that NARS have a limited role in policy development, which is the result of limited capacity to engage in policy dialogues. They have a weaker voice when it comes to negotiating and raising agricultural research funds. This is an area where CGIAR with its strong links with NARS could be more systematically engaged.

CGIAR activities related to innovation platforms and regional networks have had strong institutional capacity components and objectives. Institutional capacity has also been strengthened through policy advice and directly by establishing new entities and infrastructure. Innovation platforms represent the most widely applied approach to institutional CD in CGIAR. They are aimed at enabling diverse stakeholders to address common challenges and harness mutual benefits more effectively and efficiently than direct technology transfer, which typically involves only individual CD. However, there is no evaluative information in CGIAR on the extent to which institutional CD through innovation platforms has been effective and is likely to be sustained.

The examples examined by the evaluation team, PABRA, AMBIONET, GCP, and ILRI's BecA Hub were found, on the basis of interviews and previous evaluative studies, to be very relevant for enhancing

119 CGIAR-IEA (2016): Evaluation of CGIAR Research Program on Global Rice Science Partnership (GRiSP).

120 Dalberg Global Development Advisors (2014): Delivery at the CGIAR. Report for 7 May Fund Council meeting. Fund Council Working Document.

capacity in genetic improvement, which remains a core competence of CGIAR. The regional programs and networks have been successful in developing capacity but the main challenge they face is dependency on external funding. CGIAR has made effective contributions to CD as facilitator, catalyst and host, and as provider of technical expertise and backstopping.

Concerning other areas for strengthening institutions, the cases reviewed by the evaluation team showed variable and a tendency to reduced effectiveness and sustainability. Regional higher education programs were effective but faced sustainability issues when initial funding subsided. For such programs, CGIAR made effective contributions as facilitator, host and provider of scientific expertise. For innovation platforms, for example the Sub-Saharan Challenge Program, directly targeting innovation capacity, there was little information on effectiveness and sustainability.



5 Conclusions and recommendations

© Colby Silvert / WorldFish

Strategic prioritization of CD

CGIAR Centers and CRPs in recent years have engaged in a very wide range of CD activities, individual CD being the largest area of activity for which CD funding is allocated. The span of CGIAR CD includes brief events, training courses and practical, on-the-job training, support for academic studies and learning through research collaboration. CD also includes less easily defined activities, such as network development, which lead to capacity strengthening of organizations and institutions. For individual CD, CGIAR has targeted many types of recipient, ranging from researchers and policy-makers to primary producers and community members. The reported number of individuals who have received training has risen considerably since an earlier evaluation of CGIAR training. CD is a cornerstone of CGIAR's research for development strategy, but CGIAR does not have a comparative advantage in all CD areas in which it engages: CGIAR remains a network of scientific research centers and its investments in CD and activities resulting in enhanced capacity should support its strategy and mission.

Overall, the evaluation team concludes that more strategic leadership and direction is needed to ensure the relevance of CGIAR CD. There is little useful guidance for how CGIAR projects and programs should respond to pressures for demonstrating uptake of their research products in situations when markets and public extension systems fail, and when adequate development partnerships are not practicable. Especially in view of the apparently significant investment in downstream training at the farm level, with unknown effectiveness and sustainability, clear strategic guidance would be helpful for CGIAR's approach to CD in circumstances where the enabling environment at national level is limited or lacking.

In general, CD programs that attempt to assume the role of national extension agencies and similar bodies, catering to the CD needs of primary producers and rural groups, do not represent CGIAR's comparative advantage and the most effective and relevant interventions of the Centers and CRPs.

However, CGIAR's comparative advantage in this regard may depend on who the alternative capacity providers are and how seriously the lack of capacity hinders CGIAR's effectiveness and impact.

There is no CGIAR-wide strategic framework reflecting the structure and capacity needs of national and regional agricultural research and development systems, the principal actors and agendas already in place to address these, and how CGIAR should address such needs, together with its partners. Through ASTI, CGIAR is a leader in the assessment of science and technology investments, and national and regional strengths, and in the provision of information and analysis of NARS capacity needs. Capacity needs assessments by other organizations are also available. However, CGIAR does not apply this important body of knowledge and information in a strategic manner to guide its own CD activities.

The funding environment has not been favourable for CD activities, similar to other cross-cutting (e.g. partnership building) and other program management activities (e.g. M&E) which are nevertheless essential for the achievement of CGIAR goals. Furthermore, the evaluation found limited effort to adjust CD prioritization and activities to CGIAR's changing financial landscape where core funding has been diminishing rapidly, bilateral funding has limitations to how it can be used, and where innovative ways to finance CD are needed. To avoid a further atomization of CD efforts, CGIAR Centers and CRPs have to work more collectively.

◆ Recommendation 1.

Under the leadership of the System Management Board, CGIAR should develop and commit to a comprehensive CD agenda, in line with the needs and approaches of its research and development partners. The agenda should be based on an analysis of regional and national capacity needs for agricultural research and development. This agenda should:

- › clarify CGIAR's mandate for CD, differentiating between development of partner capacities and support for technology adoption and use;
- › guide CGIAR's approach to CD and technology delivery under different scenarios depending on the strength of national research and extension systems required for scaling of outcomes and impact;
- › develop a typology for CD that would clarify elements of informal or synergistic CD through research collaboration, networking and other activities that are primarily geared towards research and delivery. CIFOR and ICRAF have already initiated a process to develop a CD typology and framework for Capacity Needs Assessment as part of the FTA II POWB-2017. This and similar initiatives could be used as a starting point.

◆ Recommendation 2.

Centers and CRPs should base their medium-term CD plans on clear CD strategies and incorporate CD more consistently into their theories of change. The strategic planning of CD should be based on CD needs assessments done jointly with research and development partners, especially with internal CGIAR partners. This should take into account alternative providers of CD and CGIAR's comparative advantage in different situations, particularly for developing capacities for research and strengthening sustainable capacity for scaling of results. Furthermore, Centers and CRPs should assess the relative cost-effectiveness of their CD activities vis-à-vis other CD providers to better determine in which areas their CD activities add most value.

◆ Recommendation 3.

In its CD activities, CGIAR should aim at taking full advantage of the experience and facilities of the Centers, particularly with regard to their scientific staff and amenities, and training of local end users and communities should be de-emphasized or channelled through more appropriate CD providers to ensure better relevance and focus and greater cost-effectiveness of CGIAR's efforts.

Approaches to capacity development

As CGIAR's research and CD activities are organized into projects that often target many kinds of stakeholders and entities simultaneously, it is difficult to cater systematically to the needs of these stakeholders across projects and over time. The evaluation team found good evidence of the effectiveness of individual CD interventions and programs, but very little evidence of cumulative effects to strengthen the organizational and institutional capacity in agricultural research and development.

CGIAR engages in many activities that are not purely CD but which result in enhanced capacity. These include, for example, mentoring and learning through research collaboration, collaborative research programs and networking – all activities with research and development objectives. These numerous activities are not consistently planned, documented or monitored for their CD effects. In general, there is limited understanding of the extent to which such CD, which might be termed “informal”, is effective and produces results following its completion. Yet, on basis of other evaluations and feedback received by this evaluation team, such activities are a major contributor to CD.

CGIAR's often “projectized” approach to CD stands in contrast to principles for effective and sustainable CD that calls for planning and implementation of CD as an engaging, recipient-owned process. CGIAR Centers appear to have overcome these difficulties to some extent through effective partnership approaches that include facilitating multi-partner networks, platforms and multilateral programs. Several Centers have also been able to maintain close relations with key NARS entities, particularly NARIs, sometimes over decades of collaborative projects and programs.

While it can be expected that capacity is continuously developed through these partnerships, sustainability is a challenge, especially when key donor support or CGIAR participation ends. This calls for careful preparation and management of transitions and exit. In some cases, transition and sunset strategies were successfully implemented, but in other cases strengthened organizational and institutional capacities seem to have been lost.

Over recent decades, different approaches to understanding how CGIAR contributes to development have emerged, ranging from focusing on international public goods and technology transfer models to integrated AR4D and Agricultural Innovation Systems. The choice of paradigm has strong influence on what individual, organizational and institutional capacities are considered important for effective and sustainable agricultural research and development systems. However, there is only limited evidence on how different approaches actually perform. Substantial investments have been made in setting up innovation platforms by several Centers/CRPs for driving innovation at the beneficiary level, and they are seen as a mechanism for CD. However, there is sparse information on their relative effectiveness, efficiency and sustainability regarding development of organizational and institutional capacities.

◆ Recommendation 4.

Centers and CRPs should build on successful partnership approaches, such as the facilitation of collaborative multi-stakeholder networks and multi-donor programs and platforms, to ensure that CD has the required long-term perspective and is relevant to and owned by the stakeholders and entities that strengthen their capacities. Careful preparation, management and transition support is required when CGIAR or key donors end their support to programs. The CGIAR country coordination efforts provide an opportunity for CGIAR Centers and CRPs to work more collaboratively on needs and priority assessments in these countries where CGIAR is particularly active.

◆ Recommendation 5.

CGIAR should systematically review the existing experience on innovation platforms to establish how effective they are as a means for CGIAR to make CD interventions for enabling large-scale adoption of CGIAR's research products. From experience, CGIAR should assume an optimal role, on the basis of its comparative advantage and that of national/regional organizations and development agencies, in channelling capacity support to innovation platform participants.

Strengthening institutional set-up and support for Capacity development

Several Centers have established research support units for CD, and have integrated CD into appraisal and project cycle management, which the evaluation team considers good practice. However, Most CRPs and several Centers lack dedicated support functions for assisting research staff with planning, implementing and following-up on CD interventions.

There are two principal challenges for ensuring good CD practice in Centers and CRPs. First, funding CD expert positions and CD support units has become more difficult for Centers due to changes in CGIAR's funding structure, and most CRPs do not have a dedicated CD staff position. Some Centers have successfully developed internal markets for CD support services, or fund CD support units through charging research projects. Second, CGIAR's matrix structure of CRPs and Centers makes it difficult for Centers engaged in many CRPs (and for CRPs with many participating Centers), to plan and manage CD activities in a systematic way, given that CD is almost exclusively a Center activity but its integration along the impact pathway and monitoring in terms of reporting is a CRP responsibility. Despite this, Centers are in the evaluation team's view in the best position to manage CD, including its quality, integrating CD with project management cycles.

The time and effort CGIAR research staff invest in CD is often not adequately recognized and rewarded. While senior management's support and guidance is crucial, successful CD requires staff buy-in, and hence recognition in job descriptions and performance appraisals.

The CapDev CoP, supported by the Consortium Office, has made significant contributions to establishing a common understanding, synthesizing good practices, and enabling knowledge exchange. It continues to be relevant because its members represent most CD experts and focal points in CGIAR. However, the evaluation team found the CapDev CoP to be under-resourced, operating largely on a voluntary basis and receiving only limited support from the Consortium Office/System Management Office. CGIAR needs to find a modality for significant, dedicated support for CD, both at System and operating level.

◆ Recommendation 6.

CGIAR Centers should, in collaboration with CRP management and through facilitation by the CapDev CoP, integrate adequate CD support into their management systems and approaches for ensuring that their CD activities are planned, implemented and followed-up in accordance with good CD practices and in alignment with CGIAR's Capacity Development Framework.

Monitoring and Reporting on Capacity development

Data and information regarding CD across the Centers and CRPs have not been documented and archived sufficiently well. What is available is limited, quantitative and not informative of the strategic purpose of CD. A considerable amount of potentially useful information is not easily retrievable and in some cases appears not to have been recorded. Furthermore, tracing CD activities at Centers and CRPs from planning to implementation and particularly to results is limited. Follow-up is customarily weak,

and does not allow monitoring of CD results in terms of sustainably strengthened capacities and their effects on research productivity. This makes it difficult to assess whether targets are relevant and realistic and whether CD objectives are being reached in any of the CD levels that CGIAR targets: individual, organizational and institutional. It is evident that M&E systems invariably are not in place for CD activities. Given the importance and long history of CD in CGIAR, this situation is sub-optimal.

The evaluation team sees little value in the current CD-related reporting in CGIAR for any of the purposes associated with results-based management: learning, improved decision-making, and accountability to donors, development partners and beneficiaries. The reporting of aggregate numbers and information in a few categories masks a wide range of activities for different purposes and tells little about relevance, realism or performance. Current input-level requirements for CRPs, in terms of allocating a portion of their budget for CD activities, is ambiguous in the absence of a CD typology and because of overlapping research and CD activities (discussed above). Qualitative approaches to monitoring and reporting, such as long-term tracer studies targeting particular CD interventions and outcome case studies, may be better suited to report on CD. The PABRA database represents a good model for how data might be stored and used for continuous M&E.

◆ Recommendation 7.

The System Management Office should revise CD-related reporting requirements and put **emphasis on reporting against strategic and annual planning in a manner that reflects intended purpose, type and modality of CD, specifying stakeholder groups targeted**. Reporting and indicators should better serve management purposes. The challenge will be to define a reasonable and harmonized number of CD indicators that can work also at project level and that can be consolidated and meaningful. In their planning of CD activities Centers and CRPs should also plan for follow-up on the beneficiaries so as to provide information that will enable monitoring of progress and results, and improvement in implementation of CD activities. Alternative approaches to monitoring, such as long-term tracer studies targeting particular CD interventions and outcome case studies, should be explored by Centers and CRPs for management and reporting. Developing a CD typology (in Recommendation 1.c) would help harmonize CD data and information collection and documentation across the CGIAR.

REFERENCES

- African Network for Agriculture, Agroforestry and Natural Resources Education (ANAPE) (2015) ANAPE: The Strategy 2016-2020.
- Aissetou, D.Y., Akinnagbe, O.M., Alfred, O., Sebastian, C. and Mipro, H. (2015) Assessment of Gender Policy in Selected Tertiary Agricultural Education Institutions in Africa. *Agricultural Sciences*, 6, 1039-1047.
- Anderson, JR. et al. (2004): An Assessment of the Impact of ISNAR: 1997-2001.
- Arimond, M. et al. (2010): Reaching and Engaging End Users (REU) with Orange Fleshed Sweet Potato (OFSP) in East and Southern Africa” and Annex: A Report on Impact. HarvestPlus, c/o IFPRI, Washington, DC.
- AWARD (2015): Empowering African Women Scientists through Career-Development Fellowships. AWARD.
- Beintema, N. (2014): Enhancing female participation in agricultural research and development: Rationale and evidence. In *Gender in agriculture: Closing the knowledge gap. Part V Toward a gender-sensitive agricultural research, development, and extension system*, ed. Agnes R. Quisumbing, Ruth Suseela Meinzen-Dick, Terri L. Raney, André Croppenstedt, Julia A. Behrman, and Amber Peterman. Chapter 16. Pp. 393-409.
- Beintema, N, Stads, GJ., Fuglie, K. and Heisey, P. (2012): ASTI Global Assessment of Agricultural R&D Spending- Developing countries Accelerate Investment. Washington, D.C.: International Food Policy Research Institute (IFPRI).
- Birner, R. and Byerlee, D. (2016): Synthesis and lessons learned from 15 CRP evaluations. Summary Report, Rome, Italy: Independent Evaluation Arrangement (IEA) of CGIAR.
- Brandon, P. et al. (2014): Monitoring and Evaluation of African Women in Agricultural Research and Development (AWARD): An Exemplar of Managing for Impact in Development Evaluation. *American Journal of Evaluation* 2014, Vol 35 (I), 128-143.
- Brunold, Dengu, and Jenny (2006): The Pan-Africa Bean Research Alliance (PABRA): Joint External Evaluation.
- CGIAR (2015)a: CGIAR Strategy and Results Framework 2016-2030. CGIAR Consortium Office.
- CGIAR (2015)b: 2017-2022 CGIAR Research Program Portfolio (CRP2) Final Guidance for Full Proposals. CGIAR Consortium Office.
- CGIAR (2015)c: Capacity Development Framework. Prepared by CGIAR Capacity Development Community of Practice for the second round of CGIAR Research Programs. CGIAR Consortium Office.
- CGIAR (2015)d: Capacity Development Indicators for the Second Phase of CGIAR Research Programs. CGIAR Consortium Office.
- CGIAR (2014) “Templates for Annual Reporting for the Years 2014 and 2015 from the Consortium to the Fund Council Concerning the CRPs. February 2013, updated November 2014. CGIAR Consortium Office.
- CGIAR (2013): Consortium Request for a CGIAR Fund Commitment to System-Wide Capacity Strengthening Activities. CGIAR Consortium Office.
- CGIAR (2011): A Strategy and Results Framework for the CGIAR.

CGIAR (2009): Voices of Change The new CGIAR.

CGIAR (2008): Bringing together the best of science and the best of development: Independent Review of the CGIAR System Technical Report.

CGIAR (2007): The Charter of the CGIAR System.

CGIAR- IEA (2016): Evaluation of Capacity Development Activities of CGIAR - Inception Report. Rome, Italy: Independent Evaluation Arrangement (IEA) of CGIAR (iea.cgiar.org)

CGIAR- IEA (2016): Evaluation of Capacity Development Activities of CGIAR – Terms of Reference. Rome, Italy: Independent Evaluation Arrangement (IEA) of CGIAR (iea.cgiar.org)

CGIAR-IEA (2016): Evaluation of CGIAR Research Program on Global Rice Science Partnership (GRISP). Rome, Italy: Independent Evaluation Arrangement (IEA) of CGIAR (iea.cgiar.org)

CGIAR-IEA (2014). Final External Review of the Generation Challenge Programme. Rome, Italy: Independent Evaluation Arrangement (IEA) of CGIAR (iea.cgiar.org)

CGIAR ISPC (2011): Report of the Second External Review of the Sub-Saharan Africa Challenge Program (SSA-CP). Rome, Italy: Independent Science and Partnership Council Secretariat.

CGIAR Science Council (2008) Report of the First External Review of the Generation Challenge Program. Rome, Italy: Science Council Secretariat

CGIAR Science Council (2007) Sub- Saharan Africa Challenge Program External Review. Rome, Italy: Science Council Secretariat.

CGIAR Science Council (2006): Evaluation and Impact of Training in the CGIAR. Rome: Science Council Secretariat.

CTA and ANAFE (2015): Joint impact assessment of CTA's support to ANAFE (2003–2013). Sebastian Chakeredza, Aissetou Yaye and Enid Kaabunga.

Christoplos, I. (2016): Capacity Development and Relations Between the CGIAR and Agricultural Extension. Published in Volume III of CGIAR-IEA: Evaluation of Capacity Development Activities of CGIAR (2017). Rome, Italy: Independent Evaluation Arrangement (IEA) of CGIAR (iea.cgiar.org)

CIMMYT (2014): 2014 Annual Report: Turning Research Into Impact. Mexico, DF (Mexico). CIMMYT. Series: CIMMYT Annual Report.

CIP (2015): Annual Report 2015. International Center for Tropical Agriculture (CIAT). Cali, Colombia.

DAC Working Party on Aid Evaluation (2010): Results Based Management in the Development Cooperation Agencies: A Review of Experience.

Dalberg Global Development Advisors (2014): The BecA-ILRI Hub Africa Biosciences Challenge Fund (ABCF) Capacity Building Evaluation: Final Report.

Dalberg Global Development Advisors (2014): Delivery at the CGIAR. Report for 7 May Fund Council meeting. Fund Council Working Document.

Eley, R.; Ibrahim, H.; Hambly, H.; Demeke, M.; Smalley, M. [Mulat Demeke]. ILRI, Nairobi (Kenya). 2002. Evaluating the impact of the graduate fellowship programme of the International Livestock Research Institute. A tools and process report. ILRI Impact Assessment Series. no. 8. 68p. Nairobi (Kenya): ILRI

Emmens, B. and Green, A (2014): Equipped for Action: A Review of IWMI / WLE's Capacity Development of External Partners. IWMI.

- Fones-Sundell, M. and Teklehaimanot, Z. (2006): Mobilizing Agroforestry Capacity for Development: Final Evaluation of The African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE) and Zambian Agroforestry Project (ZAP).
- Frankenberger, T. and Nelson, S. (2011): Ex-Post Impact Assessment Review of the Regional Network on Aids, Livelihoods, and Food Security (RENEWAL). IFPRI.
- Horton, D., Akello, B., Aliguma, L., Bernet, T., Devaux, A., Lemaga, B., Magala, D., Mayanja, S., Sekitto, I., Thiele, G. and Velasco, C. (2010): Developing capacity for agricultural market chain innovation: Experience with the 'PMCA' in Uganda. *J. Int. Dev.*, 22: 367–389.
- Humidtropics (2016). CRP - Commissioned External Evaluation (CCEE) of Humidtropics, a CGIAR Research Program on Integrated Systems for the Humid Tropics, Ibadan, Nigeria.
- Kahindo, J-M. (2015): Curricula Reforms at the University of Kisangani as a Foundation for Capacity Building in a New DRC Context. Conference Abstract (World Forestry Congress - Durban, 2015).
- Kuyvenhoven, A. (2014): Impact Assessment of IFPRI's Capacity-Strengthening Work, 1985–2010. Independent Impact Assessment Report 38. Washington, D.C.: International Food Policy Research Institute (IFPRI).
- Lusthaus, C., Adrien, MH. and Perstinger, M. (1999): Capacity Development: Definitions, Issues and Implications for Planning, Monitoring and Evaluation. *Universal Occasional Paper*, p. 5.
- Lynam, J. (2016): Assessing the CGIAR's Approach to Capacity Development in AR4D in Sub Saharan Africa. Published in Volume III of CGIAR-IEA: Evaluation of Capacity Development Activities of CGIAR (2017). Rome, Italy: Independent Evaluation Arrangement (IEA) of CGIAR (iea.cgiar.org)
- Mayne, J. (2007): Best Practices in Results-Based Management: A Review of Experience A Report for the United Nations Secretariat.
- Norton, G.W. (2011): Impact Assessment of the IFPRI Agricultural Science and Technology Indicators (ASTI) Project.
- Ozgediz, S. (2012): The CGIAR at 40. Institutional evolution of the World's premier Agricultural research Network.
- Pamuk, H., Bulte, E. and Adekunle, A. (2014): Do decentralized innovation systems promote agricultural technology adoption? Experimental evidence from Africa, *Food Policy*, Volume 44, February 2014, Pages 227-236.
- Posthumus, H.; Martin, A.; Chancellor, T. (2013): A systematic review on the impacts of capacity strengthening of agricultural research systems for development and the conditions of success. EPPI-Centre, Social Science Research Unit, Institute of Education, University of London, London, UK (2013) iv + 168 pp.
- Potter, C. and Brough, R. (2004): Systemic capacity building: A hierarchy of needs. *Health Policy Plan* 2004; 19 (5): 336-345.
- Pray, C. (2006): The Asian Maize Biotechnology Network (AMBIONET): A model for strengthening national agricultural research systems. Mexico, D.F.: CIMMYT
- Robinson, J. (2015): Independent external review: The role of CIAT in the Pan-Africa Bean Research Alliance. International Center for Tropical Agriculture (CIAT) and the Pan-Africa Bean Research Alliance (PABRA). 25p.
- Roth, C. and Zimm, S. (2016): Synthesis and Reflections from Five CRP Evaluations: Report on a Meta-

- Analysis of Five CRP Evaluations. Rome, Italy: Independent Evaluation Arrangement (IEA) of CGIAR (iea.cgiar.org)
- Stads, GJ. (2015): Agricultural R&D in West Asia and North Africa: Recent investment and capacity trends. Washington, D.C.: International Food Policy Research Institute (IFPRI).
- Stads, GJ. (2015): A snapshot of agricultural research investment and capacity in Asia. Washington, D.C. and Bangkok, Thailand: Asia-Pacific Association of Agricultural Research Institutions (APAARI) and International Food Policy Research Institute (IFPRI).
- Staiger, S. et al (2013): Lessons Learned and Ways Forward on CGIAR Capacity Development: A Discussion Paper.
- Svensson, A. and Salih, M.: African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE): System-Based Audit
- Taylor, P. and Ortiz, A (2008): IDRC Strategic Evaluation of Capacity Development: 'Doing Things Better? How Capacity Development Results Help Bring about Change.
- Tropical Agricultural Platform (2016): Common Framework on Capacity Development for Agricultural Innovation Systems: Conceptual Background
- UNDP (2009): Capacity Development: A UNDP Primer.
- UNDP (2009): Handbook on Planning, Monitoring and Evaluating for Development Results"
- Vähämäki, J. (2016): Matrixing Aid: The Rise and Fall of 'Results Initiatives' in Swedish Development Aid. (PhD dissertation). Stockholm.
- Vähämäki, J., Schmidt, M. and Molander, J. (2011): Review: Results Based Management in Development Cooperation. SIDA.
- Von Braun, J. (2004): The ISNAR Program at IFPRI: Strategy, Priorities, Implementation. Presentation at Exco.
- World Bank (1986): Training in the CGIAR system: building human resources for research to improve food production in developing countries. Washington, DC: World Bank.